IBM

# Administering IBM® Lotus® Domino™ 6: Building the Infrastructure
*Student Guide*

IBM Software Services for Lotus

Lotus. software



# Administering IBM® Lotus® Domino™ 6: Building the Infrastructure

*Student Guide*

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IBM offers the widest range of server platforms for Lotus Domino, including the Intel processor-based Netfinity server family. With Netfinity servers, solutions ranging from simple e-mail to unified messaging to Web site hosting and collaborative applications such as distance learning and knowledge management are confidently executed. Both the Quality Assurance Engineering and Curriculum Development departments, within Lotus' education line of business, utilize Netfinity servers to develop and test the company's education offerings. Domino's functionality combined with the IBM mark of reliability on the Netfinity product family differentiates Lotus from its competition. With more than 70% of the world's data residing on IBM systems, and with the innovative software products and services from Lotus Development, IBM and Lotus are taking connectivity to a new level in all aspects of business — from document management to e-business.

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# Course Description

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# Course Description

## Target audience

The target audience for *Administering IBM® Lotus® Domino™ 6: Building the Infrastructure* is administrators new to Domino who are responsible for:

- Initial install and setup of a basic IBM® Lotus Notes® and Domino™ 6 infrastructure.
- Setup of Domino Mail servers in the corporate intranet and Internet environment

## Summary description

This course covers installation and configuration of a basic Domino infrastructure with a single domain using an existing deployment plan. The course also covers setting up mail routing in the single-domain environment.

## Course format and duration

This course format is instructor-led. The course length is two days.

## Course goals

After completing this course, you should be able to:

- Identify basic planning considerations and guidelines.
- Identify the process for implementing a Domino infrastructure.
- Install the Domino server and Domino Administrator client software.
- Set up the first Domino server and Domino Administrator client.
- Create regional certifiers.
- Create a database to track Domino and Notes registration.
- Register servers, users, and administrators per an established naming scheme.

**Course Description...**(continued)

## Course goals...

- Set up additional servers and workstations in the Domino domain.
- Create user groups.
- Create policies.
- Set up ID file backup for new users.
- Add users to a Domino domain.
- Specify administration preferences.
- Allow and restrict server access.
- Allow administrators access to the Domino Directory.
- Specify the level of detail recorded in the Domino Directory.
- Create a group for server replication.
- Set replication schedule to synchronize Domino system databases.
- Configure intranet Domino mail routing.
- Establish a mail routing schedule.
- Enable and configure SMTP routing.
- Restrict mail flow to and from the Internet.
- Set delivery controls.
- Set mail transfer controls.
- Create mail rules.
- Establish mail quotas.
- Set up server for mail journaling.
- Establish an archive policy.
- Monitor mail delivery and statistics.
- Track mail messages.
- Identify troubleshooting tasks.
- Test mail connections.
- Resolve common mail delivery problems.

**Course Description...**(continued)

## Topics covered

The *Administering IBM Lotus Domino 6: Building the Infrastructure* course covers the following topics:

- Plan a basic Domino infrastructure.
- Install the Domino server software.
- Set up the first Domino server.
- Create a database to track Domino licenses.
- Create additional certifiers for servers and users per an established naming scheme.
- Create server IDs per an established naming scheme.
- Set up servers in the Domino domain per an established naming scheme.
- Create user groups.
- Create Organizational policy.
- Create internal Domino user IDs per an established naming scheme.
- Install the Notes workstation software.
- Add workstations to a Domino domain.
- Specify administration preferences.
- Allow and restrict server access.
- Allow administrators access to the Domino Directory.
- Create a group for server replication.
- Set up the replication schedule to synchronize Domino system databases in the domain.
- Configure intranet Domino mail routing.
- Establish a mail routing schedule.
- Enable SMTP routing.
- Configure basic and advanced settings for SMTP routing.
- Enable message controls, using:
  - Delivery and transfer controls
  - Restrictions
  - Quota
  - Journaling
  - Mail rules
  - Archiving policy
- Enable message tracking.
- Monitor mail routing.
- Troubleshoot common mail setup and routing problems.

**Course Description...**(*continued*)

## Recommended agenda

The course contains four modules.

■ *Module A: Setting Up the Domino Environment* and *Module B: Setting Up Administration for the Domino Environment* describe installation and setup of Notes and Domino.

■ *Module C: Setting Up the Messaging Infrastructure* describes setup of the mail infrastructure.

■ *Module D: Troubleshooting the Messaging Infrastructure* describes how to monitor and troubleshoot the mail infrastructure.

The suggested agenda is to cover Modules A and B on Day 1 and Modules C and D on Day 2.

## Day 1

The following table shows the recommended agenda for Day 1.

| Time | Lessons or Topics |
|---|---|
| 15 minutes | Introductions |
| 30 minutes | *Lesson 1: Using a Deployment Plan* |
| 60 minutes | *Lesson 2: Setting Up the First Server and Administrator* |
| 15 minutes | Break |
| 30 minutes | *Lesson 2: Setting Up the First Server and Administrator (continued)* |
| 60 minutes | *Lesson 3: Adding Domino Servers* |
| 60 minutes | Lunch |
| 30 minutes | *Lesson 3: Adding Domino Servers (continued)* |
| 60 minutes | *Lesson 4: Adding Notes Clients* |
| 15 minutes | Break |
| 30 minutes | *Lesson 4: Adding Notes Clients (continued)* |
| 60 minutes | *Lesson 5: Setting Up Server Administration* |
| 60 minutes | *Lesson 6: Synchronizing Domino System Databases* |

**Course Description...**(continued)

## Day 2

The following table shows the recommended agenda for Day 2.

| Time | Lessons or Topics |
|------|-------------------|
| 90 minutes | *Lesson 7: Setting Up Intranet Mail Routing* |
| 15 minutes | Break |
| 90 minutes | *Lesson 8: Setting Up Mail Routing to the Internet* |
| 60 minutes | Lunch |
| 90 minutes | *Lesson 9: Establishing Mail Controls* |
| 15 minutes | Break |
| 60 minutes | *Lesson 10: Monitoring Mail* |
| 90 minutes | *Lesson 11: Resolving Common Mail Problems* |

# Lotus Professional Certification

# Lotus Professional Certification

IBM Software Services for Lotus has a robust certification program in support of IBM Lotus Notes and Domino technical competencies. For complete information on Lotus' professional certification program, visit the IBM Software Services for Lotus Certification Web page at http://www.lotus.com/certification.

## Place in certification

*Administering IBM Lotus Domino 6: Building the Infrastructure* is listed as one of the preparation resources for the following exam(s):

- *Notes Domino 6: Building the Infrastructure*

This exam is part of the path for CLP IBM Lotus Domino 6 System Administrator certification. The complete path is described below.

| Exam Number | Exam Name | Certification Earned |
|---|---|---|
| 620 | Notes Domino 6 System Administration Operating Fundamentals | CLS |
| 621 | Notes Domino 6: Building the Infrastructure | |
| 622 | Notes Domino 6: Managing Servers and Users | CLP (all 3 exams required) |

**Lotus Professional Certification...**(continued)

## Preparing for a Lotus certification exam

Attending this course and using this Student Guide will help you prepare for certification. Some topics covered on the exam are not covered in this course and some of the objectives covered in this course are not tested on the exam. Be sure to follow all the steps listed in order to prepare fully for the exam.

| Step | Action |
|------|--------|
| 1 | Review the exam competencies. |
| 2 | Get hands-on experience. |
| 3 | Use the Exam Preparation Chart. |
| 4 | Use all available resources. |

## Step 1: Review the exam competencies

Review the exam competencies to see the complete listing of possible topics for the exam. Use the competency listing as your checklist to determine your weaknesses and the areas on which you will want to focus more attention in your studies and preparation.

You will find the competencies listed in:

- The Exam Guides located on the IBM Software Services for Lotus Certification Web page at http://www.lotus.com/certification.

## Step 2: Get hands-on experience

Actual hands-on experience is a critical component in preparing for the exam. The exam is looking to measure how well you perform tasks, not how well you memorize features and functions.

- Spend time using the product and applying the skills learned.
- Direct application of the skills learned in this class cannot be replaced by any other single resource listed here.

**Lotus Professional Certification...***(continued)*

## Step 3: Use the Exam Preparation Chart

The Exam Preparation Chart summarizes the learning resources available for each individual exam. For the latest exam information, check the IBM Software Services for Lotus Certification Web page at http://www.lotus.com/certification.

## Step 4: Use all available resources

We recommend using a range of resources when preparing to take an exam. The following table describes the types of resources available to prepare for certification exams. For a listing of resources specific to each exam, use the Exam Preparation Chart.

| Resource | Brief Description | Where to Find Resource |
|---|---|---|
| Exam guides | Complete version includes certification titles and paths, sample questions, and registration information. | Complete version is available on the IBM Software Services for Lotus Certification Web page at http://www.lotus.com/certification. |
| Lotus authorized courses | Offered at Lotus Authorized Education Centers (LAECs) and IBM Software Services for Lotus locations worldwide. | A complete list of courses and LAECs are available on the IBM Software Services for Lotus Education Web page at http://www.lotus.com/education. |
| CBT programs | Used as an alternate learning tool and/or supplement to courses. | Additional information is available at The Education Store on the IBM Software Services for Lotus Education Web page at http://www.lotus.com/education. |
| Practice tests | Available from a variety of vendors. Visit the individual exam preparation page to determine what practice tests are available for a specific exam. | Available from the IBM Software Services for Lotus Certification Web page at http://www.lotus.com/certification. |

## Lotus Professional Certification... *(continued)*

## Step 4: Use all available resources...

| Resource | Brief Description | Where to Find Resource |
|---|---|---|
| Online learning | May include additional items such as Learner-Directed Offerings from Lotus software and/or authorized course in LearningSpace. | Learner-Directed Offerings from IBM Software Services for Lotus are available at http://www.lotus.com/education. The Notes.net Web site at http://www-10.lotus.com/ldd/lbytes.nsf. See the complete Exam Preparation Chart for any additional online learning. |
| Yellowbooks | Official Lotus product documentation. | Additional information available at The Education Store on the IBM Software Services for Lotus Education Web page at http://www.lotus.com/education. |
| Redbooks | Technical cookbooks that address topics that the reference manuals may not cover. | Ordering information is available at http://www.lotus.com/home.nsf/welcome/redbook. |

## Preparing for the Notes Domino 6: Building the Infrastructure exam

The following materials are available for the *Notes Domino 6: Building the Infrastructure* exam:

- Experience
- Exam Guide
- *Administering IBM Lotus Domino 6: Building the Infrastructure*
- Domino 6 Help files

For the most up-to-date resource listing for this exam, visit the IBM Software Services for Lotus Certification Web page at http://www.lotus.com/certification.

# Learning Processes and Conventions

# Icon Quick Reference

The following are brief descriptions of each of the learning process icons used in this course.

## Assessment

Provides feedback to both the student and instructor and can be formal or informal. Assessments can be collected and graded or assessment answers are provided.
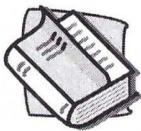
## Case study

Exercises for discovery and exploration in advanced technical course that focus on problem solving. These have no "right" answer. The solution is a set of pros and cons and a recommended answer.

## Exercises

Problem-solving learning processes in which students are given a set of criteria that they use to develop a working solution.

There are two types of exercises: online and paper-based. The following two items show the icons that would accompany each.
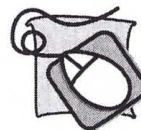
### Online exercise

Students complete the exercise using the computer.

### Paper-based exercise

Students complete the exercise using paper and pencil.

**Icon Quick Reference...**(continued)

## Guided Practice

Student-centered learning process that allows students to learn by performing a task. Guided Practices can be instructor-led or self-paced.

## Procedure

Generic step-by-step instructions that explain how to perform a task. These are always presented in a table format.
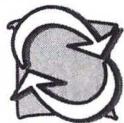
## Review

Reiterates main concepts and can be used to gain feedback, assess learning, review critical material, or to transition from one unit to another.

# Learning Conventions

Conventions are rules that govern how to display specific types of information.

The following are learning conventions that may be used within this courseware.

Cautions are short, descriptive paragraphs meant to warn of potential pitfalls or areas where students could experience problems during class or back on the job.

**Caution**

**Note:** Notes may appear in the Student Guide and can be used to note differences in content.

**Tip:** Tips provide additional guidance, or a hint, for students about a topic or task.
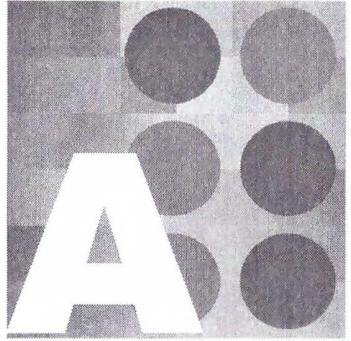
**Administering IBM Lotus Domino 6: Building the Infrastructure**

# Setting Up the Domino Environment
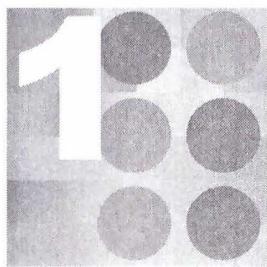
# Using a Deployment Plan

Planning is a critical step in the process of implementing an IBM Lotus Notes and Domino environment.

Worldwide Corporation has decided to use Notes and Domino as their international standard for messaging and collaboration. Worldwide has gone through extensive planning to determine their mail and application requirements and to identify how Notes and Domino can accommodate those requirements.

As a result of their planning, Worldwide has designed a deployment plan to describe how they will implement Notes and Domino throughout the corporation.

This lesson covers basic guidelines and considerations to use when planning a Notes and Domino implementation and introduces Worldwide's deployment plan and implementation checklist.

## Objectives

Upon completion of this lesson, you should be able to:

✓ Identify basic planning considerations and guidelines.
✓ Identify the process for implementing a Domino infrastructure.

# Planning Considerations

When planning a Domino infrastructure:

- Determine the business problems to be addressed.
- Examine the organizational structure.
- Design the Domino environment around the organizational structure.

The Domino infrastructure should enhance and support the organizational structure.

## Checklist: Planning the Domino environment

Worldwide Corporation used the following checklist to plan their infrastructure.

| | Task | Procedure |
|---|---|---|
| ❏ | 1 | Identify structure of organization. |
| ❏ | 2 | Create planning team. |
| ❏ | 3 | Identify tracking mechanism. |
| ❏ | 4 | Define the business problem. |
| ❏ | 5 | Identify how Domino can address the business problem. |
| ❏ | 6 | Identify access needs. |
| ❏ | 7 | Identify hardware requirements (site map). |
| ❏ | 8 | Identify server roles. |
| ❏ | 9 | Select location for servers. |
| ❏ | 10 | Identify network protocol(s) and networking changes. |
| ❏ | 11 | Choose replication topology. |
| ❏ | 12 | Identify directory strategy. |
| ❏ | 13 | Select mail routing strategy. |
| ❏ | 14 | Develop naming scheme. |
| ❏ | 15 | Define security. |
| ❏ | 16 | Determine server configurations. |
| ❏ | 17 | Determine client configurations. |
| ❏ | 18 | Determine rollout strategy. |
| ❏ | 19 | Determine education strategy. |

# Planning Guidelines

Several areas need to be considered when planning a Domino infrastructure. It is important to determine and follow guidelines to ensure that all tasks are properly carried out.

## Guidelines for planning tasks

The following table provides some guidelines for planning tasks.

| Task | Guidelines |
|---|---|
| Identify structure of organization:<br>■ Examine current structure.<br>■ Validate with upper management.<br>■ Design Domino infrastructure around organization. | Determine:<br>■ Geographic layout of the organization<br>■ Mobile considerations<br>■ Number of users and where they are located<br>■ Business model<br>■ Work environment<br>■ Infrastructure<br>■ Communication<br>■ Future plans<br>■ Key departmental considerations<br>■ Decision makers |
| Create planning team. | ■ Identify the decision makers (based on size of company, will be different roles).<br>■ Identify the skills required to design the Domino infrastructure.<br>■ Assign individuals/job titles to the skills.<br>■ Identify gaps in skills and/or human resources.<br>■ Ensure approval from upper management. |
| Identify tracking mechanism to:<br>■ Record planning progress.<br>■ Allow adjustment of goals as necessary.<br>■ Keep users informed.<br>■ Serve as a project management tool. | Identify:<br>■ The types of information to track, for example:<br>  ■ Dates<br>  ■ Timelines<br>  ■ Budget<br>■ How the information will be used<br>■ Who will contribute to it<br>■ How it will be updated and managed<br>■ Suggested tracking mechanisms, such as:<br>  ■ Domino Web application located on a test server<br>  ■ Existing project management software |

**Planning Guidelines...**(continued)

## Guidelines for planning tasks...

| Task | Guidelines |
|------|-----------|
| Define the business problem. | Typical business problems include:<br>■ Knowledge management<br>■ Process<br>■ Communication<br>■ Extended enterprise |
| Identify how Domino can address the business problem. | Basic Domino solutions include messaging and/or workflow:<br>■ E-mail/PIM<br>■ Broadcast/Reference<br>■ Discussion<br>■ Tracking/Workflow |
| Identify access needs. | Identify:<br>■ Current and future user information access requirements<br>■ User location access requirements<br>■ Domino hardware requirements<br>■ Changes to existing hardware based on user needs and Domino requirements |
| Identify hardware requirements (site map). | ■ Identify factors affecting hardware infrastructure, such as budget and expertise.<br>■ Determine operating system(s) for Domino servers.<br>■ Identify Domino specifications.<br>■ Determine need for clustering and/or partitioned servers.<br>■ Determine backup strategy.<br>■ Identify current hardware infrastructure (create a site map).<br>■ Determine changes to current hardware infrastructure to support Domino. |

*Bernardett Valencia*

**Planning Guidelines...**(continued)

## Guidelines for planning tasks...

| Task | Guidelines |
|------|------------|
| Identify server roles. | ■ Determine the roles of Domino servers based on the business problem, for example:<br>　■ Mail<br>　■ Application/Web<br>　■ Hub<br>　■ Communication<br>　■ Certificate Authority<br>　■ Firewall |
| Select location for servers. | ■ Assign roles to servers in locations based on:<br>　■ Organizational structure<br>　■ Business problem(s)<br>　■ User needs<br>　■ Hardware requirements<br>■ Update the site map by specifying which servers belong in each location. |
| Identify network protocol(s) and networking changes. | Identify network connections based on:<br><br>■ Network protocols (recommended protocol TCP/IP)<br>■ Network traffic (LANs and WANs) — amount of bandwidth needed depends on:<br>　■ The amount of mail traffic and database replication<br>　■ How traffic is routed (shared applications on the same network<br>　■ Clustering, if clustered servers are implemented<br>■ Domino Named Networks, including:<br>　■ Connection types (protocols available, bandwidth)<br>　■ Time zones (when does replication occur?)<br>　■ Which workgroups exist in multiple sites and are dependent on each other for information?<br>　■ What is the level of urgency for data within an application that is replicated between servers?<br>　■ Who communicates with whom most often?<br>　■ What dialup connectivity is required? |

**Planning Considerations...** *(continued)*

## Guidelines for planning tasks...

| Task | Guidelines |
|---|---|
| Choose replication topology. | ■ Identify who needs access to what information and when.<br>■ Identify where to put applications to be replicated.<br>■ Determine how and when replication occurs.<br>■ Use Hub and Spoke topology when possible to maximize server resources.<br>■ Use dedicated replication hubs where possible. Use Pull/Push replication from the hubs.<br>■ Create a replication map that shows which servers replicate with each other, the frequency of replication, and any restrictions that are in place.<br>■ Place applications in geographic locations by workgroups. |
| Identify directory strategy. | ■ Identify domain or domains.<br>■ Define directory structure by domain.<br>■ Identify how the Domino Directories will be used.<br>■ Identify the external directories that will be accessible to Domino users.<br>■ Determine whether to use Central Directory (for better performance and efficiency).<br>■ Determine whether to use Directory Catalogs (for mobile users). |
| Select mail routing strategy. | ■ Identify mail clients.<br>■ Identify which mail routing protocol or protocols to use based on client types.<br>■ Determine message format based on client types.<br>■ Decide on security mechanism(s).<br>■ Determine how mail is routed using a topology map. |
| Develop naming scheme. | Determine Organizational Units based on:<br>■ Location<br>■ Departments<br>■ Workgroups<br>Server's common name should:<br>■ Be a short, descriptive name.<br>■ Contain an abbreviation for the region where it resides.<br>■ Not contain any spaces.<br>■ Be easily expandable<br>■ Be easily recognizable for the tasks the server performs. |

**Planning Guidelines...**(continued)

## Guidelines for planning tasks...

| Task | Guidelines |
|---|---|
| Define security. | Secure the following:<br>■ Workspace<br>■ Network<br>■ Server<br>■ Workstation<br>■ Applications |
| Determine server configurations. | Consider standardizing the following for Domino servers:<br>■ File directory structure<br>■ Database location<br>■ Database size quotas<br>■ Domino server types based on the server role<br>■ Notes client types based on users' job responsibilities<br>■ Use of the same release of Domino server software throughout the organization |
| Determine client configurations. | ■ Identify Domino client types.<br>■ Identify non-Domino client configurations.<br>■ Identify user mail configurations. |
| Determine rollout strategy. | ■ Identify project milestones and deadlines.<br>■ Identify who is responsible for project milestones. |
| Determine education strategy. | ■ Identify training resources for technical users.<br>■ Identify training resources for end users. |

# Worldwide's Deployment Plan

The complete Worldwide Corporation Infrastructure Plan appears in *Appendix B: Worldwide Corporation Infrastructure Plan*. The deployment plan includes three regions for implementation:

■ Headquarters (Corporate)
■ East
■ West

## Classroom implementation

This course implements the basic infrastructure based on the deployment plan. The Domino and Notes components for the three regions appear in the following completed classroom diagram.
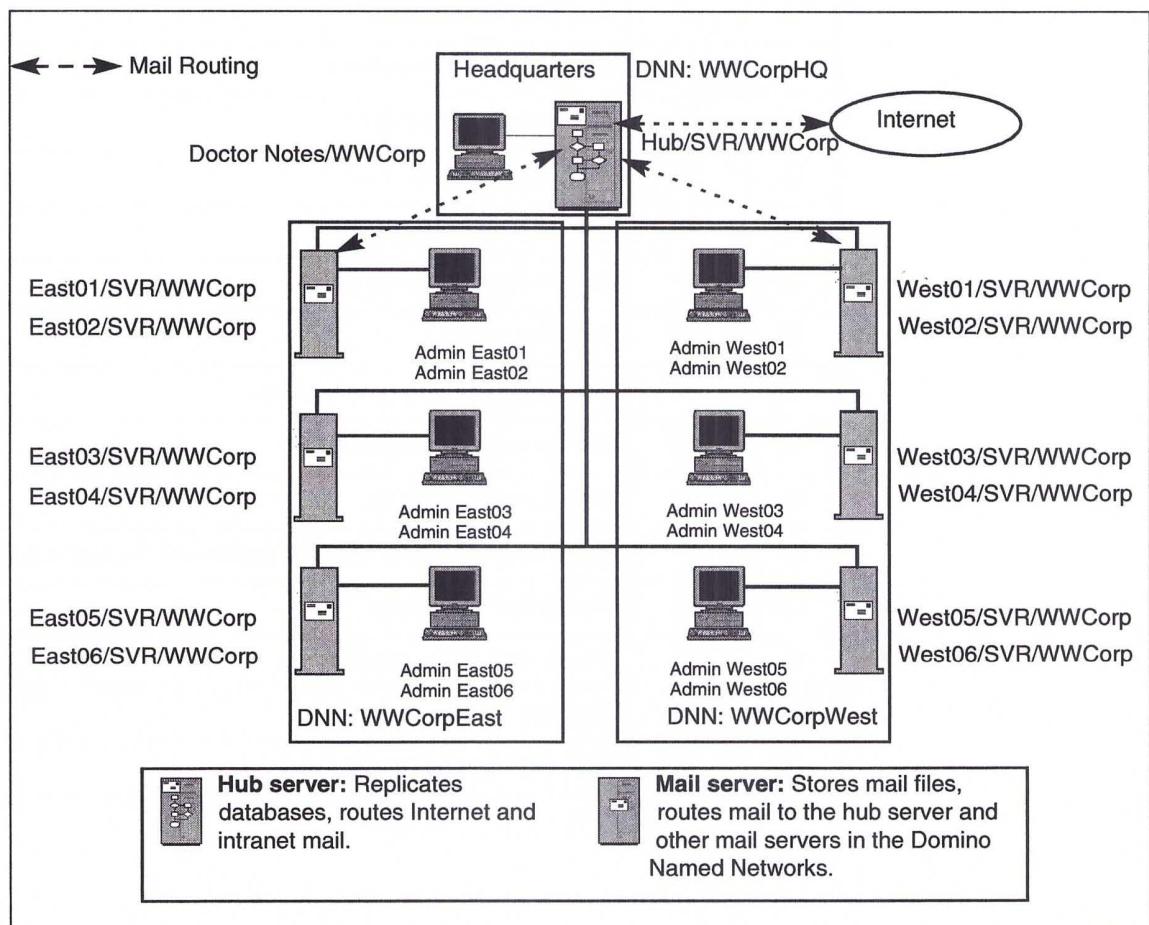
# Implementation Checklist

This course implements a subset of Worldwide Corporation's deployment plan.
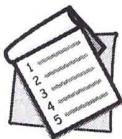
## Checklist: Building the Domino environment

This course implements the following tasks from Worldwide Corporation's deployment plan.

| | Task | Procedure |
|---|---|---|
| ❑ | 1 | Set up the first server. |
| ❑ | 2 | Add an administrator's workstation. |
| ❑ | 3 | Set up access to the Domino Directory. |
| ❑ | 4 | Add Domino servers. |
| ❑ | 5 | Add Organizational Units. |
| ❑ | 6 | Register administrators. |
| ❑ | 7 | Add Notes clients. |
| ❑ | 8 | Create user groups. |
| ❑ | 9 | Create organizational policy. |
| ❑ | 10 | Register users. |
| ❑ | 11 | Set administration preferences. |
| ❑ | 12 | Set up access to servers. |
| ❑ | 13 | Set up server logging. |
| ❑ | 14 | Synchronize Domino system databases throughout the domain. |
| ❑ | 15 | Route mail internally. |
| ❑ | 16 | Route mail to the Internet. |
| ❑ | 17 | Set mail controls. |
| ❑ | 18 | Test mail routing and delivery. |

# Setting Up the First Server and Administrator

The administrators for Worldwide Corporation will begin implementation with the first Domino server. The following components result from setting up the first server, which will be used to implement the rest of the plan:

- Organization certifier
- Server name
- Administrator's name
- Directory of resources in the domain

## Objectives

Upon completion of this lesson, you should be able to:

- ✓ Install the Domino server software.
- ✓ Install the Domino Administrator client software.
- ✓ Set up the first Domino server.
- ✓ Set up the Domino Administrator client.
- ✓ Create a database to track Domino and Notes registration.

# Choosing the Domino Server Installation Type

To ensure installation of the appropriate server software, administrators must select the server type at installation.

## Domino server installation types

The following table outlines the three Domino server installation types.

| Server Type | Function |
|---|---|
| Domino Utility server | ■ Application services only<br>■ Support for Domino clusters<br>**Note:** This does not include support for messaging services. |
| Domino Messaging server | ■ Messaging services<br>**Note:** This does not include support for application services or Domino clusters. |
| Domino Enterprise server | ■ Both messaging and application services<br>■ Support for Domino clusters |

**Note:** All three server types support Domino partitioned servers.

*Usuario Roaming. configuración — ual qui estacin NOTES ONLY*

## Classroom server installation types

This lesson covers installing and setting up the first server in the Domino environment. A subsequent lesson covers setting up all other servers in the same domain. We will select Domino Enterprise server as the installation type to allow for all possible configurations.

## Domino partitioned servers

The installation presents an option for **Partitioned Server Installation**. This option allows an administrator to install and configure more than one Domino server on the same machine. Worldwide Corporation has chosen to dedicate a machine to each server, so we will leave this checkbox deselected during installation of the classroom servers.

# Installing the Domino Server Software

Installing the Domino server software copies executables, database templates, and other files to the hard drive. On Microsoft® Windows® platforms, the installation also creates registry entries.

## Install the Domino server software

Follow these steps to install the Domino Enterprise server software.

| Step | Action |
|------|--------|
| 1 | Run the Domino 6 server installation executable, Setup.exe, from the location provided by the instructor. |
| 2 | On the **Welcome** screen, click **Next**. |
| 3 | Click **Yes** to agree with the terms of the **License Agreement**. |
| 4 | On the next screen, enter the following information:<br>■ **Name:** Enter your name.<br>■ **Company name:** Enter WWCorp.<br>■ Ensure that **Partitioned Server Installation** is deselected.<br>Then, click **Next**. |
| 5 | On the next screen, select the following folders:<br>■ **Program folder:** *drive:*\Domino<br>■ **Data folder:** *drive:*\Domino\data<br>where *drive* is provided by the instructor.<br>Then, click **Next**. |
| 6 | Select **Domino Enterprise server**, and click **Next**. |
| 7 | Accept the default **Program Folder**, **Lotus Applications**, in which to include the Domino 6 menu item, and click **Next** to begin copying files. |
| 8 | Click **Finish** to complete the installation. |

# Installing the Workstation Software

Administrators require a client to administer the Domino servers. Worldwide administrators will use the Domino Administrator client to perform all administrative tasks.

**Classroom Scenario**

To provide all students with a comprehensive hands-on experience, we have designed this course so that students administer their own servers. To accommodate this, you will run the client and server software on the same machine. The Domino server and Notes client software support this configuration provided that the server and client software is installed in separate directories on the machine. While we recognize that this is not an optimal nor a recommended configuration to deploy in a "real world" environment, we use this environment in the classroom to provide students with the experience of administering their own servers.

## Client installation types

The workstation installation offers three Notes-based clients.

| Client Type | Purpose |
|---|---|
| Notes | An interface for working with Notes databases and Internet data. |
| Domino Administrator | An interface for administering Domino systems. |
| Domino Designer | An interface for adding functionality to new or existing databases. |

**Note:** Selecting either the Domino Administrator client or the Domino Designer client also installs a Notes client.

*[handwritten annotations:]* ✱ Remote Server Setup ✱  (usuario Linux) configurar remotant desde otro S.O.

pide el IP y entra en modo gráfico

## Installing the Workstation Software...(continued)

### Can multiple users share a Notes workstation?

Many environments require different users to share programs on a workstation. The Notes workstation installation offers a multi-user option so that multiple users can share a Notes client, with each user maintaining a separate environment. There are two considerations:

■ The operating system must support multiple user profiles.
■ The Domino Designer client and the Domino Administrator client do not support multi-user.

Worldwide Corporation has chosen not to implement multi-user workstations, so we will leave this option deselected during installation of the classroom workstations. For more information on multi-user workstations, refer to the Domino Administrator 6 Help.

## Installing the Workstation Software...(continued)

## Install the Domino Administrator client software

Follow these steps to install the Domino Administrator client software on designated workstations in the classroom.

| Step | Action |
|------|--------|
| 1 | Run the Notes 6 client installation executable, **Setup.exe**, from the location provided by the instructor. |
| 2 | On the **Welcome** screen, click **Next**. |
| 3 | Select **I accept the terms in the license agreement**, and click **Next**. |
| 4 | On the next screen, enter the following information:<br>■ **User Name:** Enter your assigned user name.<br>  For example, enter Admin East01.<br>■ **Organization:** Enter WWCorp.<br>Then, click **Next**. |
| 5 | Select the following folders:<br>■ Install program files to the *drive:*\Notes directory.<br>■ Install data files to the *drive:*\Notes\data directory.<br>where *drive* is provided by the instructor.<br>Then, click **Next**. |
| 6 | On the **Custom Setup** screen, click **Domino Administrator**, and select **This feature, and all subfeatures, will be installed on local hard drive**.<br>Click **Next** to install the default client components. |
| 7 | Click **Install** to begin copying files. |
| 8 | Click **Finish** to complete the installation. |

# What Is First Server Setup?

After installing the server software, an administrator must launch the server to configure it. First server setup creates the Domino environment to which other servers and users are added.

## What first server setup accomplishes

The first server setup program creates the components described in the following table.

| Component | Stored In |
| --- | --- |
| A Domino Directory for the new domain | The server's data subdirectory, as Names.nsf |
| An organization certifier for the organization | ■ Cert.id file in the Domino server's data subdirectory<br>■ Certifier document in the Domino Directory |
| (Optional) An organizational unit certifier | ■ Oucert.id in the data subdirectory.<br>■ Certifier document in the Domino Directory |
| A server document for the server | The Domino Directory |
| A server ID stamped by the organization's certifier | The Server document and/or the server's data subdirectory |
| A Person document for the administrator | The Domino Directory |
| The administrator's ID stamped by the organization's certifier | The Person document and/or the server's data subdirectory |

**What Is First Server Setup?...**(continued)

## Illustration of components

The following figure illustrates the components in the preceding table.

### Components from First Server Setup

| File System | Domino Directory Database (NSF file) |
| --- | --- |
| Names.nsf<br>Cert.ID<br>Server.ID<br>User.ID<br>Oucert.ID (optional) | **Certificate(s)**<br>Configuration<br>Connections<br>Domain<br>**Groups**<br>Mail-in database<br>**Person**<br>Program<br>**Server**<br>Policies |
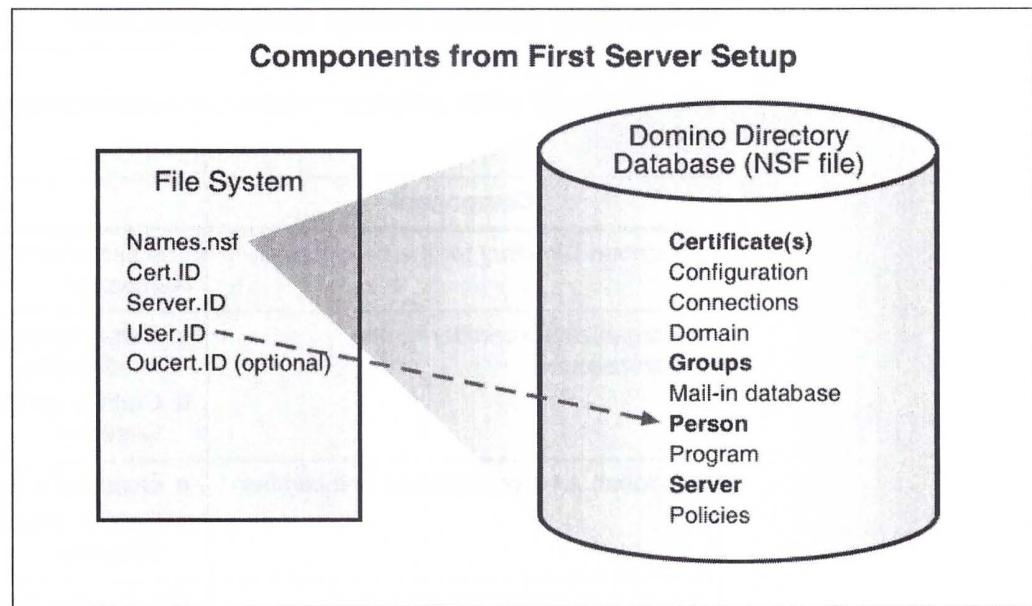
**What Is First Server Setup?...**(continued)

## The Domino Directory

The Domino Directory is the most important database in the Domino environment. It contains information about all Domino resources and how the resources function. Each additional server in the domain has a replica of the Domino Directory.

## Replicas of the Domino Directory

The following diagram represents Domino Directories on different servers. The arrows represent replication, keeping the information synchronized.
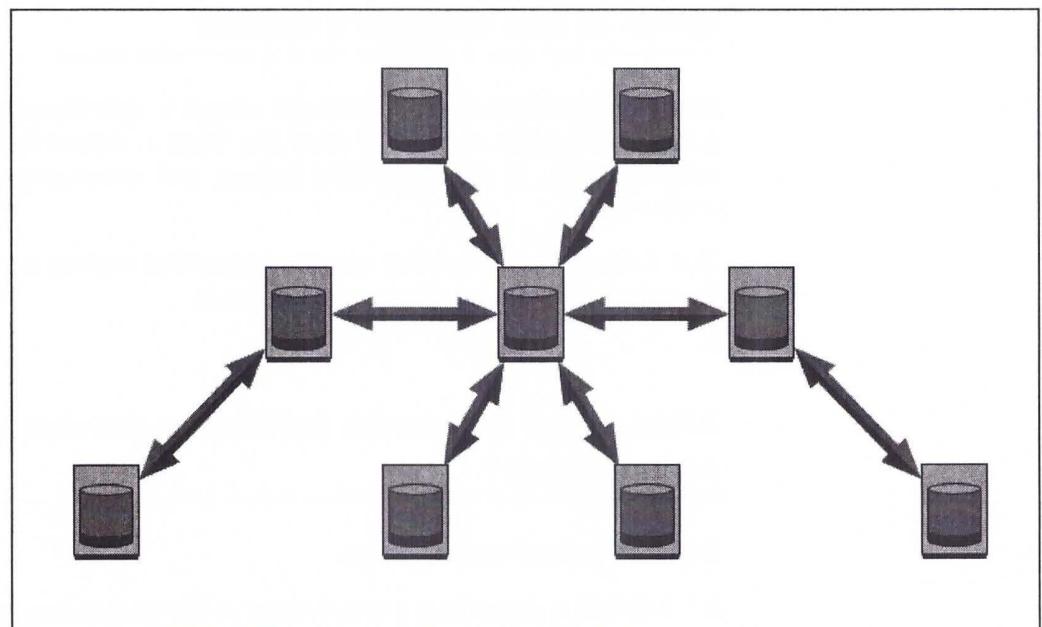
# Worldwide's Domain

Although it is possible to have more than one domain within a company, Worldwide Corporation has decided to use a single domain named WWCorp.

**Classroom
Scenario**

**Classroom Domino domain**

Worldwide's choice to use a single domain:

■ Simplifies the process of addressing mail.

■ Optimizes mail routing.

■ Is easier to maintain than multiple domains.

**Note:** The domain name should be a single word, made up of only alphabetic (A-Z) or numeric (0-9) characters.

## When to use multiple domains

Large enterprise corporations might consider defining regions or countries as separate domains in order to keep the Domino Directory manageable for administrators, to facilitate name lookup, and to maintain good server performance.

**Tip:** Consider placing Web servers accessible via the Internet in a separate domain to maintain a secure environment.

## What is the difference between a domain and an organization?

Note the following differences:

■ A Domino **domain** is the collection of Domino servers and users that share the same Domino Directory.

■ A Domino **organization** is defined by the certifier that stamps the IDs of users, servers, and other certifiers. There is a trust relationship within the organization so that users and servers can communicate and share data. The organizational certifier provides security and uniformity in naming of users and servers. The certifier name is part of the hierarchical name of all users and servers in the organization.

# Server Setup Program Choices

For convenience, the server setup program offers the ability to select Internet protocols that will load automatically at server startup. These can be configured later if not selected at server setup.

## Types of server audiences

The audience selected during server setup determines the server tasks that will run on the Domino server to accommodate the type of users who will access the server. The following table describes the types of server audiences.

| Server Audience | Description |
| --- | --- |
| Web browsers | For Web browsers, such as Microsoft Internet Explorer and Netscape Navigator®, to access data on the server. |
| Internet mail packages | For Internet mail clients using the following protocols to access mail on the server:<br>■ POP3 (Post Office Protocol 3)<br>■ IMAP (Internet Message Access Protocol)<br>■ SMTP (Simple Mail Transfer Protocol) |
| Directory Services | For clients using LDAP (Lightweight Directory Access Protocol). The LDAP task starts automatically on the administration server of the Domino Directory. |

## Security options and administrators group

The server setup program contains options for adding entries to ACLs.

■ The option for **Prohibit anonymous access** adds an ACL entry called Anonymous to all databases, and gives it the No Access ACL setting.

■ The option to create a **LocalDomainAdmins** group gives some or all administrators Manager access to all databases. This is accomplished as follows:

   ■ A group named LocalDomainAdmins is created in the Domino Directory and is given Manager access to all databases created on the server.

   ■ The first server's administrator is added to LocalDomainAdmins during first server setup. Other administrators can be added to the group later.

# How to Set Up the First Domino Server

The first step in creating the Domino environment is to set up the first server.
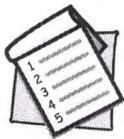
## Setting up and launching the first server

Follow these steps to set up the first server.

| Step | Action |
|------|--------|
| 1 | Launch the Domino server to run the setup program. From Windows, choose **Start→Programs→Lotus Applications→Lotus Domino Server**.<br>**Note:** Options for accessing the Domino Server Setup program vary by platform, and are covered in the appropriate installation guide. |
| 2 | On the **Welcome** screen, click **Next**. |
| 3 | Select **Set up the first server or a stand-alone server**, and click **Next**. |
| 4 | Enter the following information:<br>■ The designated name of the server.<br>■ (Optional) Enter a title. For example, enter a description of the server's purpose.<br>■ (Optional) Select **I want to use an existing server ID file**, to use a server ID file from a previous installation.<br>Then, click **Next**. |
| 5 | Enter the following information for the organization:<br>■ **Organization name:** Enter the designated organization name.<br>■ **Organization Certifier password:** Enter the designated organization password for the organization's certifier ID file.<br>■ **Confirm password:** Enter the same password.<br>■ (Optional) Select **I want to use an existing certifier ID file,** to use an organization certifier ID file from a previous installation.<br>■ (Optional) Click **Customize** and enter the following information:<br>  ■ **Organizational Unit name:** The designated organizational unit name.<br>  ■ **Org. Unit Certifier password:** Enter the designated password for the organizational unit's certifier ID file.<br>  ■ **Confirm password:** Enter the same password.<br>  ■ (Optional) Select **I want to use an existing organizational unit certifier ID file**, to use an organizational unit certifier ID file from a previous installation.<br>  ■ (Optional) Select a country code.<br>  ■ Click **OK**.<br>Then, click **Next**. |

**How to Set Up the First Domino Server...**(continued)

## Setting up and launching the first server...

| Step | Action |
|---|---|
| 6 | Enter the designated domain name, and click **Next**. |
| 7 | Provide the following information about the administrator of the server:<br>■ Enter the designated first and last names of the administrator.<br>■ Enter the administrator's password and confirm the password.<br>■ (Optional) Select **Also save a local copy of the ID file**.<br>■ (Optional) Select **I want to use an existing Administrator ID file,** to use an administrator ID file from a previous installation.<br>Then, click **Next**. |
| 8 | Select the appropriate Internet service types, or click **Customize** to select individual services.<br>Click **OK**, then, click **Next**. |
| 9 | (Optional) For Domino Network settings, click **Customize** to make the following types of changes, if required:<br>■ Deselect network ports that will not be used with this Domino server.<br>■ For each port Domino will use:<br>  ■ Select **Encrypt** if all network data sent by the server should be encrypted to render the data unreadable to someone with a network sniffer.<br>  ■ Select **Compress** if all network data sent by the server should be compressed to improve performance in a saturated or low-bandwidth network.<br>■ Change the fully qualified Internet host name if required.<br>Click **OK**, then, click **Next**. |
| 10 | (Optional) Deselect security options if needed, and click **Next**. |
| 11 | Review the selections, and click **Setup**. |
| 12 | Enter password(s), if prompted. |
| 13 | When setup is complete, click **Finish**. |
| 14 | Launch the Domino server. From Windows, choose **Start→Programs→Lotus Applications→Lotus Domino Server**. |

# Protecting the Certifier ID

**Caution**

A person with access to the organization certifier ID file and its password has the ability to change the entire organization's hierarchy. Carefully consider and plan access to this file.

## Secure the organization certifier ID file

The organization certifier ID (Cert.id) does not need to remain in the Domino\data subdirectory. Leaving it there could be a security risk if unauthorized users gain access to the server machine. Move the Cert.id file from the Domino\data subdirectory on the first Domino a server to a secure area, such as on a diskette stored in a locked cabinet.

For additional security, consider requiring multiple passwords to access the organization certifier ID.

## Alternative to using the certifier ID file and password

The server-based Certification Authority (CA) allows **selected** administrators to perform registration tasks without access to a certifier ID file and password. This enables registration of Notes users from a Web browser, using the Domino Web Administrator client, as well as from the Domino Administrator client. For more information about the server-based CA, refer to the Domino Administrator 6 Help.

**Classroom Scenario**

Worldwide Corporation will distribute certifier ID files instead of using the server-based CA for registration of Notes users.

# Worldwide's Organizational Structure

Worldwide Corporation's deployment plan divides /WWCorp into three organizational units.

## Classroom organizational implementation

**Classroom Scenario**

Worldwide Corporation is using the following organizational structure:
■ The organization certifier is /WWCorp.
■ All servers will be in an organizational unit named /SVR/WWCorp
■ Users will be in one of the following organizational units:
   ■ /East/WWCorp
   ■ /West/WWCorp

## Worldwide's certifiers

The following diagram represents the certifiers in Worldwide's Domino organization hierarchy. The organization certifier is /WWCorp and the three organizational unit certifiers are descendants of /WWCorp.
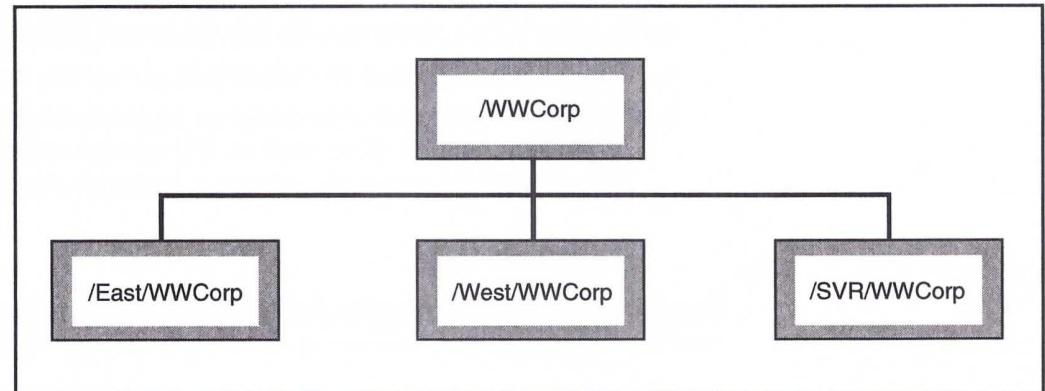
**Worldwide's Organizational Structure...**(continued)

## What purposes can organizational units serve?

Dividing an organization into organizational units (OU) allows for:

- Management by region or division. For example, database ACLs can specify different privileges for each OU.
- Separation of servers from users. For example, an administrator can easily:
  - Cross-certify the OU containing all servers with another organization.
  - Not cross-certify users with the other organization.
- Unique names for users who have the same common name.

## Are organizational units required?

A company may choose not to use organizational units. There are methods that serve similar purposes for those Domino environments:

- Group documents can enable management of subsets of the population. For example, a group document can contain all people in the East division.
- In smaller organizations, servers may not need to be separated from users.
- Differentiating two users who have the same first and last name and need to be certified by the same certifier can be accomplished in two ways:
  - The middle initial can be included as part of the common name.
  - The user registration dialog has an option to create a unique organizational unit. This adds an OU component to the user name, but the OU name does not really exist as a separate certifier.

## Naming Requirements for an organizational unit

The Organizational unit name can be a maximum of 32 characters and may include alphabetic characters (A - Z), numbers (0 - 9), and the ampersand (&), dash (-), period (.), space ( ), and underscore (_). For information on naming requirements for this and other Domino components, refer to the Domino Administrator 6 Help document titled *Table of Naming Requirements*.

**Note:** The space character is not recommended because programs other than the Notes client may not allow spaces.

# Worldwide's Hierarchical Naming Scheme

Each server and user is certified by a certifier. Worldwide will use certifier names that:

■ Indicate the region where the users work.

■ Indicate the servers being separate from users.

## Organizational hierarchy

The following diagram displays Worldwide's Domino organizational hierarchy and the users and servers certified by each certifier.

```
                          /WWCorp
          ┌─────────────────┼─────────────────┐
      /East/WWCorp      /West/WWCorp       /SVR/WWCorp

      __Admin East01    __Admin West01     __Hub
      __Admin East02    __Admin West02     __East01
      __Admin East03    __Admin West03     __East02
      __User            __User             __East03
      __User            __User             __West01
      __User            __User             __West02
      __User            __User             __West03
```
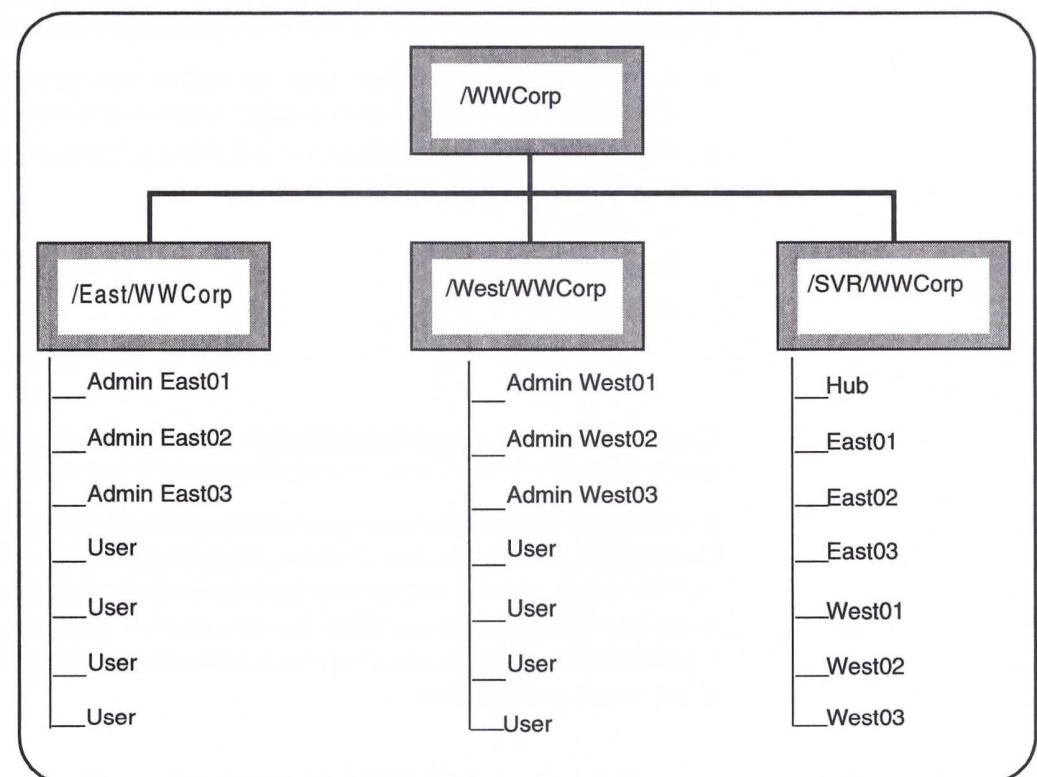
**Worldwide's Hierarchical Naming Scheme...** *(continued)*

## How does an organization offer security?

All users and servers within the /WWCorp hierarchy will be able to authenticate with each other. For example, when a user opens a database on a server, the user and server will check each other's certificates to verify that they are both descendants of the /WWCorp certifier. If so, the user database will open unless another security measure restricts access.

## What are descendants?

The deployment plan calls for setting up one organization hierarchy. Therefore, all names are descendants of the /WWCorp organization certifier.

- Certifier IDs stamp server, user, and other certifier IDs with their certificates. The /WWCorp organization certifier stamps one entity, the user Doctor Notes.
- The /WWCorp certifier stamps the following OU **certifiers** which will stamp the IDs for other users and servers:
  - /SVR
  - /East
  - /West

## Can different organizations authenticate with each other?

If Worldwide Corporation merges with another company, for example, Acme Corporation, the Notes and Domino infrastructures would not be able to communicate without administrative intervention. Administrators can perform a technique called **cross-certification** to establish trust between the two Domino organizations. Refer to the Domino Administrator 6 Help for more information about cross-certification.

# Naming Options for Regions

Domino offers flexibility in organizational naming schemes. Organizations should carefully consider the best naming scheme before first server setup.

## Are country codes needed?

In an international organization, using country codes requires creating multiple organization certifiers (one for each country code). For example, if Worldwide Corporation chose to use country codes for branches in the US, Great Britain, and Brazil, there would be three organizations:

- /WWCorp/US
- /WWCorp/GB
- /WWCorp/BR

**Note:** Using country codes increases administrative work. The following section describes an alternative to using country codes.

## Recommendations for organizational units

Use the following guidelines for deciding on organizational units:

- As an alternative to using country codes, use the first OU level to designate the country, for example, /US/WWCorp.
- Use the second OU level for region or department names to further distinguish users, for example:
  - /East/GB/WWCorp, or
  - /ISS/GB/WWCorp
- A hierarchical name can be comprised of up to four organizational units. However, in general, do not use more than three organizational units.

# Setting Up a Workstation

Once the Notes workstation software is installed, a user runs the workstation setup program to configure it appropriately. The workstation setup program configures the workstation and connects it to the Domino intranet. The setup program will:

■ Connect to the specified server, which must contain a Person document for the user.

■ Download the ID file if stored in the user's Person document.

■ Create the user's Personal Address Book locally.

■ Set up bookmarks for the user's mail file and Personal Address Book, and other databases specified in setup settings of policies.

■ Create documents in the Personal Address Book.

## Setting up the first workstation

Follow these steps to configure a Notes workstation.

| Step | Action |
|------|--------|
| 1 | Launch Domino Administrator to start the setup program.<br>From Windows, choose **Start→Programs→Lotus Applications→Lotus Domino Administrator**. |
| 2 | Click **Next** on the Welcome screen. |
| 3 | Enter the following information on the User Information screen:<br>■ **Your Name:** The name of the user created during first server setup<br>■ **Domino Server:** The hierarchical name of the first server<br>■ Select **I want to connect to a Domino server**.<br>Then, click **Next**. |
| 4 | Enter the password for the user, and click **OK**. |
| 5 | (Optional) Select Internet clients and proxy servers as required. |
| 6 | To confirm LAN connection setup is complete, click **Next**. |
| 7 | When setup is complete, click **OK**. |

**Results:** The Domino Administrator client appears and also displays two other screens that can be closed:

■ The Welcome screen can be closed temporarily or permanently.

■ The Domino Directory Profile appears after the first opening of the Domino Administrator on the first server. This profile contains advanced options and can be edited now, or later from the **Actions** menu.

# Tracking Notes and Domino Certified Users

A server used for registering and managing users should have a database called the Certification Log. The file name must be Certlog.nsf.

## What is the Certification Log?

The **Certification Log** (Certlog.nsf) maintains a record of each use of a certifier to register a user, or another certifier. The information includes:

- Name, license type, and ID number for the registered user, server, or certifier.
- Date of certification and expiration.
- Name, license type, and ID number of the certifier ID used to certify the new ID.

**Tip:** Use one Certification Log for the organization. First server setup automatically creates the Certification Log on the first server. Create a replica of the Certification Log on each additional server that will be used to register and manage users. The file name of each replica must also be Certlog.nsf.

## The License tracking database

An administrator may also choose to monitor the number of active users within a Domino domain. The License Tracking database serves this purpose. For more information, refer to the Domino Administrator 6 Help document titled *License Tracking*.

## The Domino Server Log

Every Domino server has a Domino Server Log (Log.nsf) that reports all server activity and provides detailed information about databases and users on the server. The server log file:

- Can be configured to report the desired level of detail about server activity.
- Is created automatically when a server is started for the first time.

# Assigning Roles to Administrators

Having **Manager** access to the Domino Directory's ACL enables editing the ACL. To create and edit documents in the Domino Directory, the administrator must also be assigned the appropriate ACL role(s). Worldwide Corporation will assign all ACL roles to the administrators and to servers.

## The special privilege of LocalDomainAdmins group

During first server setup, we chose to add the group LocalDomainAdmins and assign it **Manager** access in the ACL of every database. This allows any administrator listed in LocalDomainAdmins to change the ACL of any database, including the Domino Directory.

## What privileges does the LocalDomainAdmins group lack?

The LocalDomainAdmins entry is not automatically assigned any roles. The roles in the Domino Directory specify who can create and edit documents. Without the roles, an administrator cannot perform any registration tasks, because the registration program creates documents. Managers can edit the ACL, so members of LocalDomainAdmins could assign the appropriate ACL roles to themselves.

## Assigning roles to administrators and servers

The following procedure assigns roles in the ACL of the Domino Directory.

| Step | Action |
|------|--------|
| 1 | In Domino Administrator, select the **Files** tab. |
| 2 | Right-click **Names.nsf**, and choose **Access Control→Manage**. |
| 3 | Select **LocalDomainAdmins**, and select appropriate roles. |
| 4 | Select **LocalDomainServers**, and select the appropriate roles. |
| 5 | Click **OK** to save the ACL changes. |

# Deployment Tasks Implemented

In this lesson, we created the initial server and workstation in the domain and expanded the organization to include organizational units.

## Checklist: Building the Domino environment

The bolded tasks from the Implementation Checklist were completed in Lesson 2.

| | Task | Procedure |
|---|---|---|
| ❑ | 1 | **Set up the first server.** |
| ❑ | 2 | **Add an administrator's workstation.** |
| ❑ | 3 | **Set up access to the Domino Directory.** |
| ❑ | 4 | Add Domino servers. |
| ❑ | 5 | Add Organizational Units. |
| ❑ | 6 | Register administrators. |
| ❑ | 7 | Add Notes clients. |
| ❑ | 8 | Create user groups. |
| ❑ | 9 | Create organizational policy. |
| ❑ | 10 | Register users. |
| ❑ | 11 | Set administration preferences. |
| ❑ | 12 | Set up access to servers. |
| ❑ | 13 | Set up server logging. |
| ❑ | 14 | Synchronize Domino system databases throughout the domain. |
| ❑ | 15 | Route mail internally. |
| ❑ | 16 | Route mail to the Internet. |
| ❑ | 17 | Set mail controls. |
| ❑ | 18 | Test mail routing and delivery. |

# Adding Domino Servers

Worldwide Corporation has planned for mail and utility servers. They will use the organizational unit certifiers and the Domino Directory to expand the organization hierarchy in order to add servers to the Domino intranet.

## Objectives

Upon completion of this lesson, you should be able to:

✓ Register servers per an established naming scheme.
✓ Set up additional servers in the Domino domain.

# Preparing for Additional Servers

Administrators register additional servers using an existing server and workstation.

## Adding servers to a domain

The server registration process creates:

- A Server document in the Domino Directory.
- An ID file stored as one or both of the following:
  - An attachment in the Server document
  - A file at the operating system level

## Classroom server implementation

The following diagram shows the classroom servers.



| | |
|---|---|
| | Hub/SVR/WWCorp |
| East01/SVR/WWCorp | West01/SVR/WWCorp |
| East02/SVR/WWCorp | West02/SVR/WWCorp |
| East03/SVR/WWCorp | West03/SVR/WWCorp |
| East04/SVR/WWCorp | West04/SVR/WWCorp |
| East05/SVR/WWCorp | West05/SVR/WWCorp |
| East06/SVR/WWCorp | West06/SVR/WWCorp |
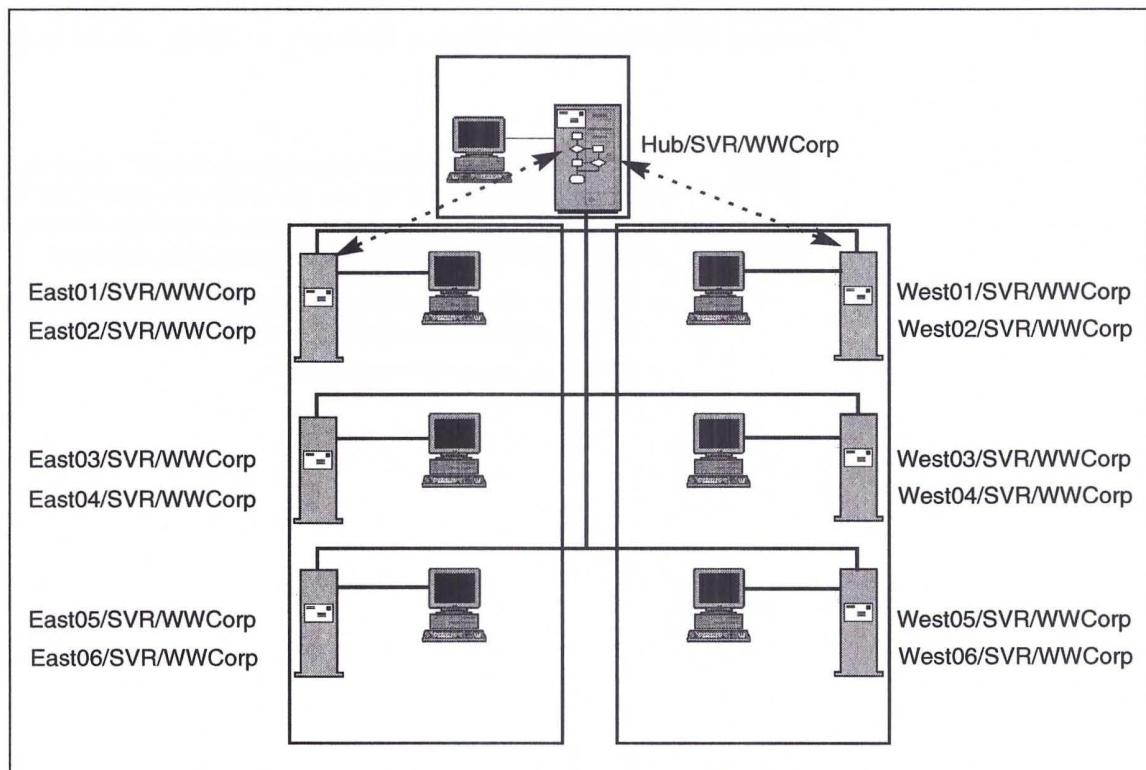
**Preparing for Additional Servers...**(continued)

## Access to register servers

To register servers, an administrator must have the appropriate access to the Domino Directory, including the following in the ACL:

- Author access or higher
- The Create documents privilege
- The ServerCreator role

In addition, the administrator must have access to the certifier ID file and password, or be a registration authority for a certifier migrated to use the Server-based Certification Authority.

## Always select a registration server

Whenever registering a certifier, server, or user, select a Domino server for the registration server. Domino creates the appropriate document in the Domino Directory on the registration server first. Then, Domino replication distributes changes to replicas of the Domino Directory on other servers in the domain.



**Caution**

Do not leave the Registration server as "Local." Always select an appropriate registration server. If the server name is left as Local, the registration program creates the document in the client's Personal Address Book. If this happens, there are two solutions:

- Copy the document from the Personal Address Book, and paste it to the appropriate view in the Domino Directory.
- Or, simply repeat the registration.

**Preparing for Additional Servers...**(continued)

## Options for storing the server ID file

The server registration program allows a choice of locations for the server ID file. Consider the following factors.

- Storing the ID file in the Domino Directory of an existing Server:
  - Allows the new server to detach the ID file from the Server document of the existing server's Domino Directory.
  - Requires a password for the attached server ID. The result is that after the server is set up, it cannot be restarted from the Domino Administrator remotely, because the password prompt displays on the server machine.
- Storing the ID file in the file system requires that the additional server machine has access to the ID file locally or on the network.

## Preparing for Additional Servers...(continued)

### Register the classroom servers

Follow these steps to register your assigned classroom server from the instructor's server.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select **Hub/SVR/WWCorp** to administer. |
| 2 | Select the **Configuration** tab. |
| 3 | On the Tools pane, choose **Registration→Server**. |
| 4 | In the Choose a Certifier dialog box:<br>■ Click **Server**, select **Hub/SVR/WWCorp** as the registration server, and click **OK**.<br>■ Click **Certifier ID**, navigate to the Domino\Data subdirectory, select **Oucert.id**, and click **Open**.<br>Then, click **OK**. |
| 5 | Enter the certifier ID password (provided by the instructor), and click **OK**. |
| 6 | On the Certifier Recovery Information warning, click **OK**. |
| 7 | Select the appropriate Security type with guidance from the instructor, then click **Continue**. |
| 8 | On the Basics panel, enter the following information.<br>■ Enter the assigned server name, for example:<br><br>■ East01          ■ West01<br>■ East02          ■ West02<br>■ East03          ■ West03<br><br>■ For **Domino domain name**, enter WWCorp.<br>■ For **Server Administrator name**, enter LocalDomainAdmins.<br>■ Choose **Weak** for the password quality to provide the ability to remove the password.<br>■ Enter the password provided by the instructor.<br>■ Select both of the following for **Location for storing server ID**:<br>■ **In Domino Directory**<br>■ **In file** |
| 9 | Click ✔, to add your server to the queue. |
| 10 | Highlight the entry for your server in the queue at the bottom, and click **Register**. |
| 11 | When all servers are registered, click **Done**. |

# The Central Directory Option

By default, each replica of the Domino Directory stores all documents. Changes to any type of document in one replica usually need to replicate to each other replica. If a server needs only a subset of documents, an administrator can select the subset by editing the replication settings for the Domino Directory.

## Standard directory structure

The following diagram shows full Domino Directories on every server. The arrows represent replication. All servers store and replicate all Domino Directory document types.
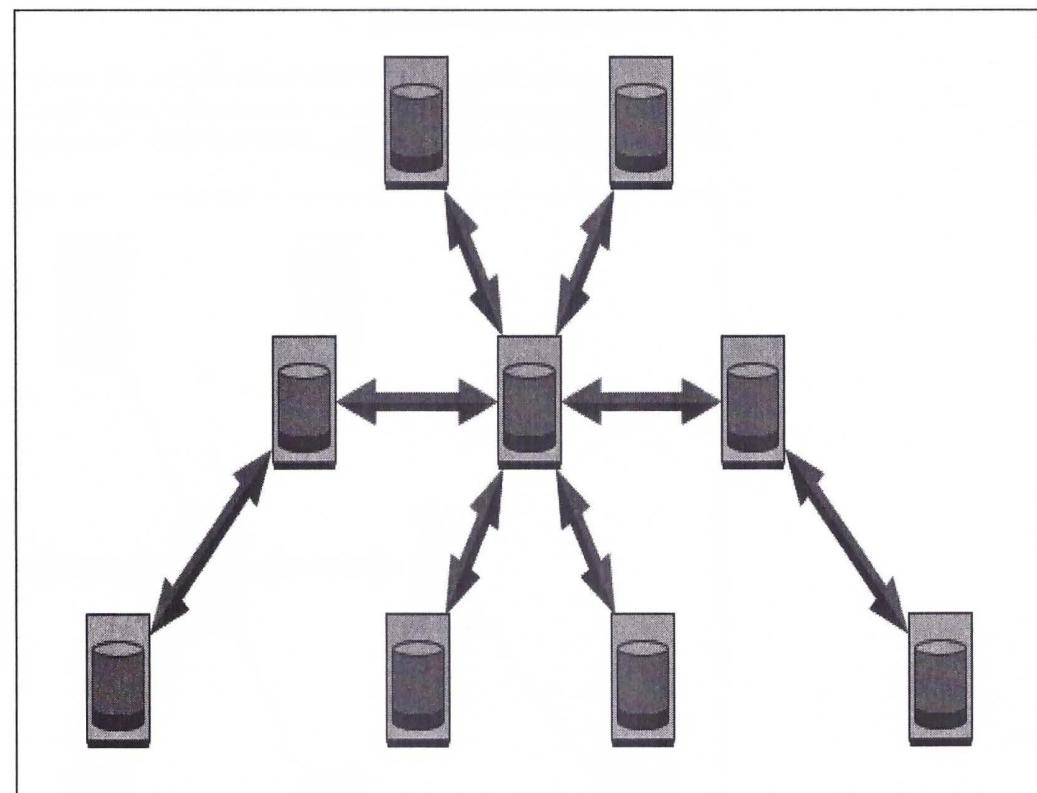
**The Central Directory Option...**(continued)

## Central directory structure

In a central directory structure, the Domino Directory on a server can be a:

■ **Primary Domino Directory**, which stores all documents.

■ **Administration Domino Directory**, which stores all documents and is an administration server.

■ **Configuration Domino Directory**, which stores only the documents needed for basic server operation.

For example, a Configuration Directory server does not store Person or Group documents. In a large domain, this option saves disk space and decreases replication work significantly.

In the following diagram, the servers in the center store and replicate all types of Domino Directory documents, so they have full Domino Directories. The servers at top and bottom have Configuration Domino Directories.
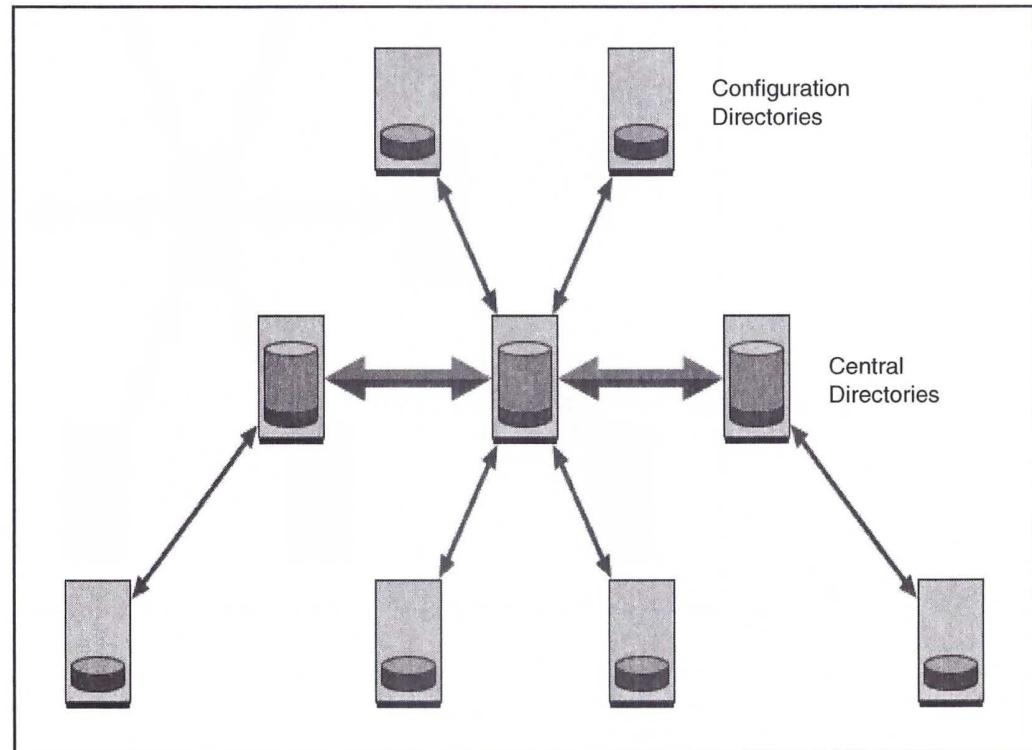
**The Central Directory Option...**(continued)

## How does a server become a Configuration Directory?

An administrator can select Configuration Directory for a server before or after server setup. The methods are:

■ During server setup, by selecting the Configuration Directory option.

■ After setup, by selecting the Domino Directory's **Replication Settings→Space Savers** panel and selecting **Include→Configuration documents only**.

# Setting Up Additional Servers

After preparing for additional servers, set them up and start them to add them to the domain.

## Set up and start an additional Domino server

Follow these steps to set up your assigned classroom server.

| Step | Action |
|------|--------|
| 1 | Launch the Domino server to run the setup program. For example, from Windows, choose **Start→Programs→Lotus Applications→Lotus Domino Server**. |
| 2 | On the Welcome screen, click **Next**. |
| 3 | Select **Set up an additional server**, and click **Next**. |
| 4 | Select **The server ID file is stored in the Domino Directory**, and click **Next**. |
| 5 | Enter the hierarchical name of your assigned server, for example East03/SVR/WWCorp, and click **Next**. |
| 6 | For **Setup Internet services**, click **Customize**, and:<br>■ Select **SMTP service**.<br>■ Deselect **DOLS Domino Off Line Services**.<br>Click **OK** and click **Next**. |
| 7 | Leave the default network settings unless the instructor advises otherwise, and click **Next**. |
| 8 | For **Other Domino server name**, enter Hub/SVR/WWCorp, and click **Next**. |
| 9 | Select **Set up as a primary Domino directory (Recommended)**, and click **Next**. |
| 10 | Leave the default security options selected, and click **Next**. |
| 11 | Review the selections, and click **Setup**. |
| 12 | Enter password(s), if prompted. |
| 13 | When setup is complete, click **Finish**. |
| 14 | Launch the Domino server. From Windows, choose **Start→Programs→Lotus Applications→Lotus Domino Server**. |

**Setting Up Additional Servers...**(continued)

## Server setup profiles can automate future setups

Administrators performing large enterprise deployments can use the record and playback options to create and use server setup profiles for future server setups. For example, administrators can record the options selected for a particular type of server and play this back to set up many servers of this type.

See the following Domino Administrator 6 Help documents for more information:

■ *Creating a server setup profile.*
■ *Using a server setup profile.*

# Clearing the Server ID with Nlnotes.exe

If an additional server's ID was created with a password, an administrator can clear the password after setup, if needed.

## Options for clearing the server ID password

Clearing the server ID password requires local access to the ID file. Two different dialog boxes contain an option to clear a password. The dialog boxes can be invoked either:

- With the Domino Administrator client by choosing **Configuration→Certification→ID Properties**, and clicking **Browse** to locate and select the server ID.
- Without the Domino Administrator, by starting **Nlnotes.exe** from the program directory of a Domino server machine installed on a Windows platform. Nlnotes.exe starts a Notes client from which an administrator can choose **File→Security→User Security** to remove the password from the server ID.

## Other uses of Nlnotes

Nlnotes can be very useful when local access to a server's data directory is needed but an Administrator client is not installed on the Windows machine.

**Caution**

Nlnotes should be used with extreme caution because it defaults to:
- Non-secure access to the server's data directory
- Use of the server ID as a user ID

# Deployment Tasks Implemented

One very significant task was completed in this lesson.

## Checklist: Building the Domino environment

The bolded task in the Implementation Checklist was completed in Lesson 3.

| | Task | Procedure |
|---|---|---|
| ❑ | 1 | Set up the first server. |
| ❑ | 2 | Add an administrator's workstation. |
| ❑ | 3 | Set up access to the Domino Directory. |
| ❑ | 4 | **Add Domino servers.** |
| ❑ | 5 | Add Organizational Units. |
| ❑ | 6 | Register administrators. |
| ❑ | 7 | Add Notes clients. |
| ❑ | 8 | Create user groups. |
| ❑ | 9 | Create organizational policy. |
| ❑ | 10 | Register users. |
| ❑ | 11 | Set administration preferences. |
| ❑ | 12 | Set up access to servers. |
| ❑ | 13 | Set up server logging. |
| ❑ | 14 | Synchronize Domino system databases throughout the domain. |
| ❑ | 15 | Route mail internally. |
| ❑ | 16 | Route mail to the Internet. |
| ❑ | 17 | Set mail controls. |
| ❑ | 18 | Test mail routing and delivery. |

# Adding Notes Clients

Worldwide Corporation needs workstations to administer the servers. We will use the organizational unit certifiers, /East/WWCorp and /West/WWCorp, and Domino Directory to add more users to the Domino intranet.

## Objectives

Upon completion of this lesson, you should be able to:

✓ Set up workstations for administrators.
✓ Create user groups.
✓ Create policies.
✓ Set up ID file backup for new users.
✓ Add users to a Domino Domain.

# Creating Regional Organizational Unit Certifiers for Users

Worldwide created the /SVR/WWCorp organizational unit certifier during first server setup. Worldwide now needs the organizational unit certifiers for the East and West regions to register users according to the deployment plan.

## Directory entries for organizational units

The certifier registration process creates a document for the organizational unit certifier in the Domino Directory. Certifier registration results in the following:

- A Certifier document in the Domino Directory.
  - The Certifier document contains the certified public key.
  - During authentication, the key is compared with the key in an ID file.
- A certifier ID file for certifying descendants of this organizational unit.

## Access to create OU certifiers

Only those administrators who meet the requirements can register organizational units. As with registering servers and users, an administrator needs:

- The appropriate access to the Domino Directory, including Author access or higher, and the Create documents privilege. Roles are not required.
- One of the following:
  - Access to a certifier ID file and password.
  - Registration authority for a certifier migrated to use the server-based certification authority.

## The registration server

Select a registration server when registering a certifier or other Domino resource. Domino creates the appropriate document in the Domino Directory on the registration server first. Then, Domino replication distributes changes to replicas of the Domino Directory on other servers in the domain.

## Creating Regional Organizational Unit Certifiers for Users... *(continued)*

## Creating an organizational unit certifier

After identifying the parent certifier, follow these steps to create the organizational unit certifier.

| Step | Action |
|---|---|
| 1 | From Domino Administrator, select the server to administer. |
| 2 | Select the **Configuration** tab. |
| 3 | On the Tools pane, choose **Registration→Organizational Unit**. |
| 4 | In the Choose a Certifier dialog box, perform the following:<br>a. Click **Server** and select the appropriate server.<br>b. Select **Supply certifier ID and password**.<br>c. Click **Certifier ID**, select a certifier ID file, and click **Open**.<br>d. Then, click **OK**. |
| 5 | Enter the certifier ID password, and click **OK**. |
| 6 | On the Certifier Recovery Information warning, click **OK**. |
| 7 | In the Register Organizational Unit Certifier dialog box, perform the following:<br>■ Click **Registration Server**, select a registration server, and click **OK**.<br>■ Click **Set ID File**, enter the new certifier ID file name, and click **OK**.<br>■ Enter the Organizational Unit name.<br>■ Select a **Password** quality, and enter a certifier password.<br>■ Select a Security type.<br>■ Enter the name of an administrator or group of administrators to receive certification requests.<br>■ Click **Register**. |
| 8 | Click **OK**. |

# User Registration Options

First server setup creates an administrative user automatically. All other Notes users must be registered before they can set up their Notes workstations. Before registration, determine the mail server on which to store each user's mail file.

## Mail servers for each administrator

The following diagram represents classroom servers and the mail files for administrators.



*DOCTOR NOTES*
*CERTIFICACION*
*RECERTIFICACION*
*JERARQUIZACION*
*ORGANIZACIONAL*
*REGISTRAR*
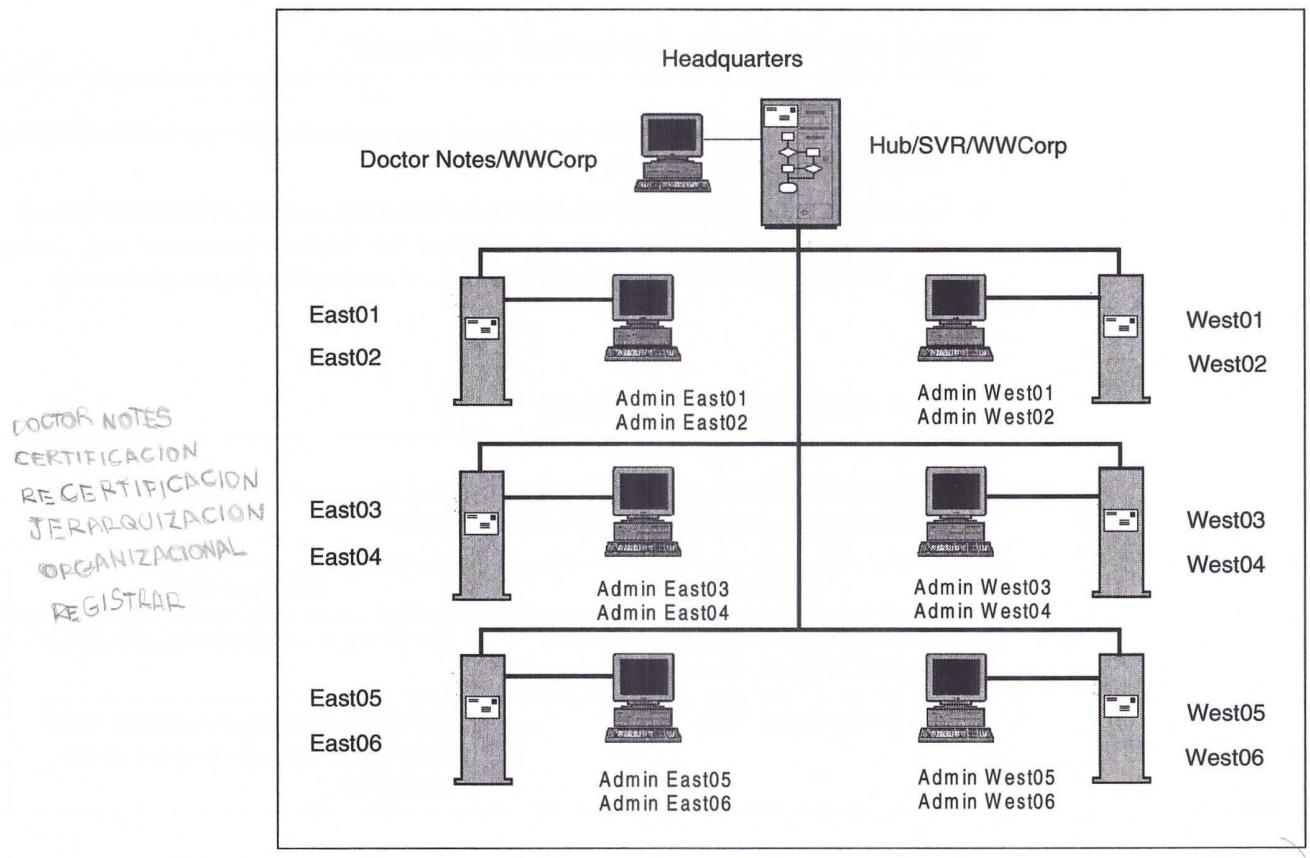
**User Registration Options...***(continued)*

## Access to register users

Only those administrators who meet the requirements can register users. Administrators must have:

■ Access to the certifier ID file and password.

■ The appropriate access to the Domino Directory, including Author access or higher, the Create documents privilege, and the UserCreator role.

## What are Internet password options?

■ **Set internet password** puts an Internet password in the Internet Password field of the Person document.

■ **Synch internet password with Notes Password** puts the specified Notes password in the Internet password field of the Person document and changes the Internet password whenever the user changes the Notes password.

## ID file distribution options

The Registration process provides two options for administrators to store the user's ID file, as described in the following table.

| ID File Option | Requirements |
|---|---|
| Attach the ID file to the user's Person document in the Domino Directory. | The ID must be password-protected. |
| Store the ID file on disk. | The ID file must be accessible to the user before the user can set up the workstation. |

# Registering the Administrators

## Register new administrators

Using the instructor's workstation, follow these steps to register a new administrator.

| Step | Action |
|---|---|
| 1 | From Domino Administrator, select **Hub/SVR/WWCorp** to administer. |
| 2 | Select the **People & Groups** tab→**Domino Directories** section→**WWCorp's Directory** section→**People** view. |
| 3 | From the Tools pane, choose **People→Register**. |
| 4 | Click **Cancel** when prompted for the certifier password, |
| 5 | Click **Certifier ID**, select the appropriate certifier ID for your region, click **Open**, and click **OK**. |
| 6 | Enter the certifier ID password (provided by the instructor), and click **OK**. |
| 7 | On the Certifier Recovery Information Warning, select **Do not show this warning for this certifier ID in the future**, and click **OK**. |
| 8 | On the Basics panel, perform the following steps:<br>■ Click **Registration Server**, select **Hub/SVR/WWCorp**, and click **OK**.<br>■ Enter your assigned First name and Last name from the *Mail servers for each administrator* diagram.<br>■ Click **Password Options** and select the following:<br>　■ For Password Quality scale, select **Weak password, not very secure (6)**.<br>　■ Select **Set internet password** to make the initial Internet password the same as the Notes password.<br>　■ Select **Synch internet password with Notes ID password**, and click **OK**.<br>　**Note:** This keeps the Internet password synchronized with the Notes password whenever the user changes the Notes password.<br>■ Enter lotusnotes for the **password**. |

**Registering the Administrators...** *(continued)*

## Register new administrators....

| Step | Action |
|---|---|
| 9 | Select **Advanced** to see more panels and options. |
| 10 | On the **Mail** panel, perform the following steps:<br>■ Click **Mail server**. Enter the appropriate server name from the diagram titled *Mail servers for each administrator*, and click **OK**.<br>■ Select **Create file in background**.<br>■ Accept the defaults for the other options on the Mail panel.<br>**Note:** The selection for "Create files now" only works if the specified mail server is currently running. |
| 11 | On the **Address** panel:<br>■ Select **FI LastName** (first initial, last name) for Address name format.<br>■ Verify that the Internet domain is correct. |
| 12 | On the **ID Info** panel, perform the following steps:<br>■ Verify that the Certifier ID is the correct one for your region.<br>■ Select the appropriate Security type for the classroom location with guidance from the instructor.<br>■ Select to store the user ID in both places:<br>  ■ **In the Domino Directory**<br>  ■ **In file** |
| 13 | On the **Groups** panel, select the **LocalDomainAdmins** group, and click **Add**. |
| 14 | Click ✅, to add the user to the Registration queue. |
| 15 | Click **Register All** to begin registering all users in the registration queue.<br>**Result:** A message appears stating that the Person registered successfully. Click **OK**. |
| 16 | When registration is complete, click **Done**. |

# Registering Users from a File

Regular users can be registered at this time or later. To populate the Domino Directory for later classroom activities, we will register users now. An alternative to entering names in the registration dialog box is to create a text file containing the names and information for users. The instructor will register users listed in a supplied text file.

## Registering users from a text file

Follow these steps to import user names and information from a text file into the registration dialog box.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the server to administer. |
| 2 | Select the **People & Groups** tab→**Domino Directories** section→*your directory* section→**People** view. |
| 3 | From the **Tools** pane, choose **People→Register**. |
| 4 | Click **Cancel** when prompted for the certifier password. |
| 5 | Click **Certifier ID**, select the appropriate certifier ID for your region, and click **Open**. Then, click **OK**. |
| 6 | Enter the certifier ID password, and click **OK**. |
| 7 | Click **Password Options** and drag the password quality scale to a strength appropriate for the passwords in the text file. Then, click **OK**. |
| 8 | Click **Import Text File**. |
| 9 | Select the text file and click **Open**. |
| 10 | Click **OK** when prompted that the users were successfully queued. |
| 11 | Click **Advanced** if changes are required. |
| 12 | Select individual entries in the queue to verify correct registration parameters on all panels. If needed, change settings for specific users, and click ✅, after each user, to apply the changes to the entry in the queue. |
| 13 | Click **Register All**. |
| 14 | Click **OK** when prompted that the users were successfully registered. |
| 15 | When registration completes, click **Done**. |

**Note:** For information on creating the text file, refer to the Domino Administrator 6 Help document titled *Registering users from a text file*.

# Replicating the Documents

After modifying the Domino Directory, as happens during any registration task, replicas on other servers need the modifications. Replication synchronizes the replicas.

## The Domino Directories need synchronization

At this point, each replica of the Domino Directory has only documents that existed on the hub server at the time of additional server setup. Therefore, the additional servers have the following:

- A Server document for each classroom server, because all servers were registered on the hub server.
- The Doctor Notes Person document, because Doctor Notes was created during first server setup.
- Only Person documents that were registered on that server.

To facilitate name lookup for users sending mail, the Person documents need to be on each server's replica of the Domino Directory. Now that the servers are running, the instructor can replicate with all classroom servers to ensure that all Person documents are in each replica.

## Restart the server to activate Server document changes

The newly replicated Server documents have changes on the Security tab. The instructor edited security restrictions to enable later activities. Changes to security restrictions may require a server restart. Follow these steps to restart your server.

| Step | Action |
|------|--------|
| 1 | At the server console, enter `Restart Server`. |
| 2 | If prompted for a password on the server machine, enter `lotusnotes`. |

# Setting Up the Workstations

The workstation setup program configures the workstation and connects it to the Domino intranet. The workstation connects to a Domino server whose Domino Directory contains a Person document for the user.

## Classroom workstation implementation

The following diagram represents the administrators and mail servers for the classroom. Use this diagram and the steps on the next page to set up your workstation.
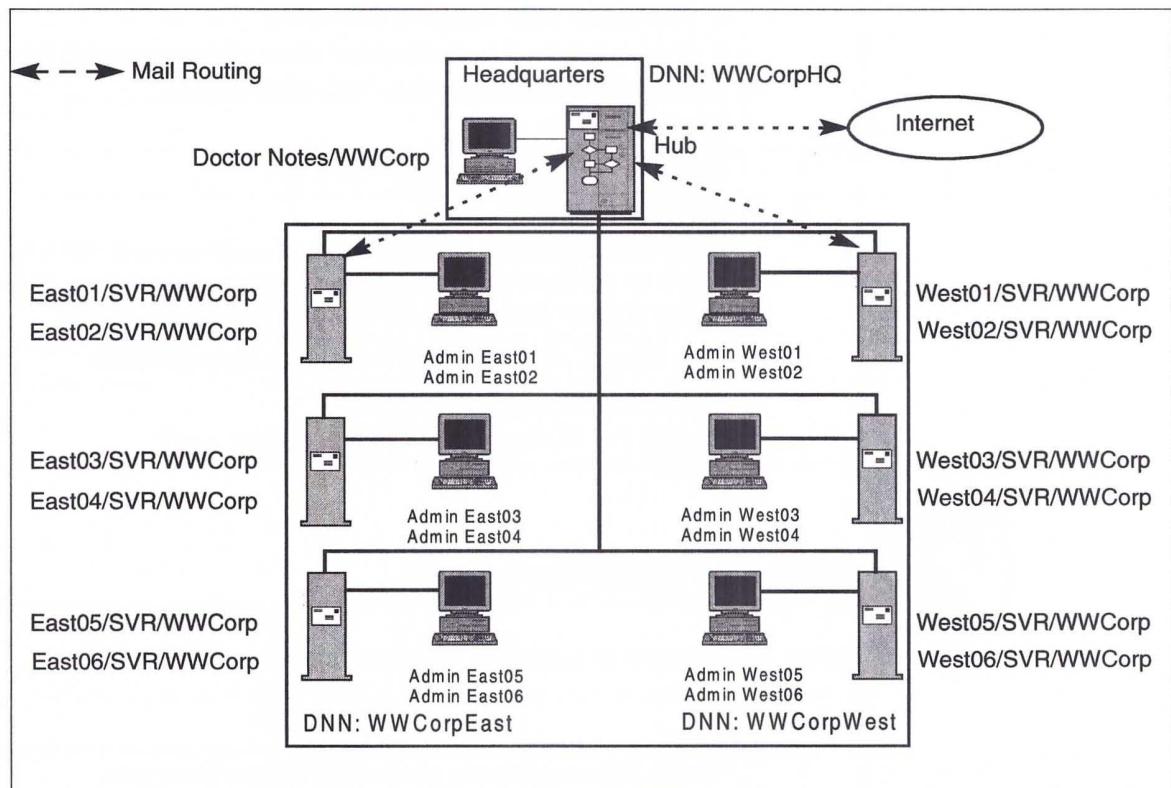
**Setting Up the Workstations...**(continued)

## Set up a workstation

Follow these steps to set up the administrators' workstations.

| Step | Action |
|------|--------|
| 1 | Launch Domino Administrator to start the setup program.<br>From Windows, choose **Start→Programs→Lotus Applications→**<br>**Lotus Domino Administrator**. |
| 2 | On the **Welcome** screen, click **Next**. |
| 3 | On the **User Information** screen, enter the following information:<br>■ **Your Name:** Your assigned user name.<br>■ **Domino Server:** The hierarchical name of your assigned server.<br>■ Select **I want to connect to a Domino server**.<br>Then, click **Next**. |
| 4 | Enter the user's password, and click **OK**. |
| 5 | Click **Next**.<br>**Note:** We will not be using the Notes client to connect with Internet servers, so we do not need to select Internet protocol options here. These options create Account documents in the Personal Address Book. |
| 6 | Click **Next** to confirm LAN connection setup is complete. |
| 7 | When setup is complete, click **OK**.<br>**Result:** The Domino Administrator program starts. |

## Close the Welcome screen

Follow these steps to close the Welcome screen.

| Step | Action |
|------|--------|
| 1 | On the **Welcome** screen, select **Don't show this again**. |
| 2 | Click the **X** in the task window to close the Welcome screen. |

# Using Domino Administrator

The Domino Administrator contains menu and graphic options for performing most of the management functions. The Domino Administrator allows connecting to different servers and can perform certain functions on multiple servers with a single click.

## Select your assigned server to administer

Follow these steps to ensure that you make changes to the Domino Directory on your assigned server.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, display the Server pane for the WWCorp domain by clicking the Domain Servers icon [FP], and click the push pin to secure the pane. |
| 2 | Choose **Administration→Refresh Server List→Current Domain**. |
| 3 | In the Server pane, expand the **All Servers** section, and select your assigned server. |
| 4 | Right-click your assigned server and choose **Add Server to Favorites** to add your server to the Favorites icon. |
| 5 | Click the **Favorites** icon 🗁 to verify that your assigned server is in the Favorites list. |

# Navigating Domino Administrator Exercise
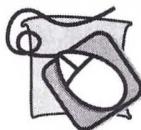
### Verify the components created so far

Use the Domino Administrator to locate the following components to answer the questions below the list of components.

- Your Server document
- The Certifier documents
- Your Person document
- The Group document you created
- Your Server's mail.box
- Mail file(s) on your server

Questions to answer:

- In the Server document for your server, what name is in the Administrators field? Is this the name you entered when registering your server?

- Is there a document for each of the four classroom certifiers?

- Does the mail file listed in your Person document exist?

# What Is the Administration Process?

The **Administration Process (Adminp)** is a program that automates routine administrative tasks, such as:

- Name-management tasks, such as rename person, rename group, delete person, delete group, delete server name, recertify users, and store Internet certificate.
- Mail file-management tasks, such as delete a Mail file and move a Mail file.
- Server document-management tasks, such as store CPU count, platform, and place network protocol information in Server document.

## Components of the Administration Process

Maintaining the Administration Process requires monitoring key components. The following table lists the components of the Administration Process.

| Component | Description |
|---|---|
| Administration Process task (Adminp) | Posts, responds to, and carries out requests in the Administration Requests database. |
| Administration server | Server responsible for completing many Administration Process requests. The Administration server is assigned for each database in the **ACL→Advanced** panel. Some Administration Process requests are completed on a server other than the Administration server, for example, on the server where the request was created. |
| Administration Requests database (Admin4.nsf) | Every server in the domain stores a replica of the Administration Requests database. Replicas of the Administration Requests database distribute requests made on one server to other servers in the domain or send mail requests to servers in other domains. |
| Certification Log (Certlog.nsf) | The Administration Process requires this database to perform name changes and recertifications. The Certification Log contains a permanent record of how users and certifiers are registered, including information about the certifier ID. The Certification Log also contains messages that describe the results of recertification requests that the Administration Process is processing. |

# Using Database Tools in Domino Administrator

The Domino Administrator enables creating replicas of a database on multiple servers with one command. All servers used to register and manage users should have a replica of the Certification Log, so this is a good use of creating replicas.

## Creating replicas on multiple servers

Follow these steps to create a replica of the Certification Log on multiple servers.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the **Files** tab. |
| 2 | Select the **Certification Log database** from the list. |
| 3 | On the Tools pane, choose **Database→Create Replica(s)**. |
| 4 | Select each server that needs a replica and click **Add**, or select **Other**, click **Add**, and enter a server name. |
| 5 | Accept the default file name or change it if required. |
| 6 | Check **Copy Access Control List**. |
| 7 | Click **OK** to create the replica. |

**Result:** Two Administration Process requests lead to creation of a replica on each server immediately. Because the Administration Process creates the replicas, the server that contains the database being replicated needs to be listed in each receiving server's **Server** document→**Security** tab→**Create new replicas** field.

---

**Use Help to determine timing and execution of Administration Process requests**

■ When performing an action that triggers the Administration Process, determine the following by referring to the Domino Administrator 6 Help document titled *Administration Process Requests*:

■ The timing of the request you are using.

■ The server that performs the request.

■ Other requests that might be generated by the action.

■ The Administration Process can be run manually to trigger a change before the next scheduled running.

---

# User and Server Groups

Worldwide Corporation has determined that they will use groups to facilitate administration and user activities. A **group** is a list of users and/or servers who have something in common. For example, a group can have the name of a department and contain all the department's members.

## What are the benefits of using groups?

Groups enable using a single word, the group name, to represent multiple users and/or servers. Use group names for mailing lists and administrative functions to simplify the listing of users and/or servers. Adding a user to a group dynamically controls the user's access to resources that specify the group name.

## What are nested groups?

Group maintenance is made easier by including groups within other groups (nesting one inside the other). For example, the Members of a group named Global Marketing could be group names of regional marketing divisions. Advantages of nesting groups include:

- Determining the members by adding only a few entries — the nested group names.
- Distributing administration of regional groups, while central administrators control large groups by nesting.
- Bypassing the size limitation of 15K of text in the members field of a Group document.

**User and Server Groups...**(continued)

## What happens if a user is a member of two groups?

A user can be in more than one group. If a database's ACL has entries for two different groups, and a user is a member of both groups, then the user gets the access level for the more-privileged group. For example, a user is allowed **Manager access** to a database if the user is a member of the following two groups that are both listed in an ACL:

- Group1, which has Manager access
- Group2, which has Reader access

Groups of the type Deny List only are an exception. A Deny List only group always takes precedence over any other group, regardless of access level.

## A user name in an ACL takes precedence over all groups

If an ACL lists a user by name, the user gets the access level associated with the user name. Group entries are ignored for that user.

## Using a Deny List only group

One group type, **Deny List only**, is for server access control and cannot be used for other purposes. Enter a Deny List only group in the **Not access server** field of the Server document, to deny the members access to the server. For example, create a Deny List only group and enter names of people who have left the organization. A conventional choice for such a group name is Terminations. The Deny List only group type has a special characteristic. When the Administration Process is used to delete instances of a user name throughout the Domino Directory, this process does not delete names from Deny List only groups. Therefore, members of Deny List only groups remain listed permanently.

# Using Groups to Facilitate Administration

Nesting groups makes group maintenance efficient.

## Create a group

Follow these steps to create mailing lists for certain users.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your assigned server to administer. |
| 2 | Select the **People & Groups** tab→**Domino Directories** section→**WWCorp's Directory** section→**Groups** view. |
| 3 | Click **Add Group**. |
| 4 | Enter a group name provided by your instructor. |
| 5 | Select **Mail Only** for the Group type, and click **OK**. |
| 6 | (Optional) Enter a description appropriate to the name of the group. |
| 7 | Add **Doctor Notes/WWCorp** as a member.<br>**Note:** You will add more members in a later exercise. |
| 8 | Click **Save & Close**. |

## Nest a group

Follow these steps to nest groups.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select a server to administer. |
| 2 | Select the **People & Groups** tab→**Domino Directories** section→**WWCorp's Directory** section→**Groups** view. |
| 3 | On the Tools pane, choose **Groups**→**Manage**. |
| 4 | In the left pane, select **LocalDomainAdmins** to include in the parent group. |
| 5 | In the right pane, select the parent group you created earlier. |
| 6 | Click **Add**. |
| 7 | Repeat Steps 4 through 6, but select two non-administrative users as members. |
| 8 | In the right-hand pane, select **Doctor Notes/WWCorp** and click **Remove**. |
| 9 | When finished managing groups, click **Done**. |

# Policy-Based Management

Policies can control many user and administrative functions. An administrator can enforce Notes and Domino policies of various types and apply them to various groupings of users.

## Key concepts regarding policies

Here are key concepts to understand regarding policy management.

- A policy is the Policy document and its associated Settings documents. Each Policy document contains pointers to selected Settings documents. This combination of the Policy document and its Settings documents constitutes one policy.

- A policy can be either:

  - Organizational, meaning it applies to an organization or an OU.

  - Explicit, meaning it applies to specific users and may include users from different OUs.

- Policies can apply to various sets of users. They can apply to an entire organization, an OU, a group of users, or even one user. Multiple policies can apply to the same user and these can contain a contradictory value for the same setting. A precedence system determines which setting a user gets.

  - In general, a policy that is more specific to a given user, takes precedence over a more general policy. For example, settings in an explicit policy take precedence over the corresponding settings in an organizational policy.

  - An Administrator can change this precedence scheme by selecting Inherit or Enforce for individual settings. An Administrator can also make the entire policy an Exception policy, meaning that its settings will take precedence over corresponding settings in all ancestor policies.

**Classroom Scenario**

Worldwide Corporation will have the following two policies:

- An Organizational policy that specifies a password length for the entire organization
- An explicit policy to make the password optional for certain users

**Policy-Based Management...**(continued)

## What are Settings documents?

There are numerous settings an administrator can specify in five types of policy Settings documents.

The following table shows examples of settings in each type of Settings document.

| Type of Settings Document | Description |
|---|---|
| Registration | Specifies default settings on the User Registration dialog box. |
| Setup | Specifies numerous types of settings to implement during Workstation setup. |
| Desktop | Specifies numerous types of settings to implement on an ongoing basis. For example:<br>■ A custom corporate welcome page.<br>■ Smart Upgrade options. |
| Archiving | Specifies what documents or attachments to archive from mail files and where to place the archive. Server-to-server archiving can archive all mail files to central server. |
| Security | Specifies controls on Notes and Internet passwords, as well as the Execution Control List (ECL). |

## When are the settings applied to users?

Settings are applied either statically or dynamically:

■ Static Settings
  ■ Set during user registration, or
  ■ Set during Workstation setup.

■ Dynamic Settings
  ■ Set dynamically when the user is logged in to the server.
  ■ For example, the Desktop Settings document contains many of the same settings as the Setup Settings document so that these settings can change dynamically, whenever a user authenticates with the server. If a user changes one of the desktop settings, it will change back to the value specified in the Desktop Settings document at the next authentication.

# Creating an Organizational Policy

For classroom purposes, most users in the organization will have a weak password quality. An Organizational policy will enforce this during user registration. If certain users do not need a password, an explicit policy can override this the password setting.

## Creating an Organizational policy

Follow these steps to create a policy for an organization or an OU and assign registration settings to the policy.

| Step | Action | Result |
|------|--------|--------|
| 1 | In the Domino Administrator, select the **Configuration** tab. | |
| 2 | In the **Tools** pane, choose **Policies→Create**. | |
| 3 | Select **Policy**, and click **OK**. On the Warning, click **Yes**, if appropriate. | The Policy document displays. |
| 4 | For **Policy Name**, enter the organization name (or organizational unit name). | |
| 5 | For **Policy Type**, select **Organizational**, and click **OK**. | The Policy name changes to hierarchical format. The wildcard symbol (*) indicates that this policy applies to every user in the organization. |
| 6 | Locate the Registration section, and click **New** in that row. On the Warning, click **Yes**, if appropriate. | The Registration Settings document displays. |

**Creating an Organizational Policy...**(continued)

## Creating an Organizational policy...

| Step | Action | Result |
|------|--------|--------|
| 7 | Perform the following in the new Registration Settings document. On the **Basics** tab:<br><br>a. For **Policy Name**, enter a descriptive name, such as:<br>`Reg set for the organization`.<br><br>b. For **Choose a registration server**, select the appropriate server.<br><br>c. For **Choose a Password Quality**, select an appropriate quality. | |
| 8 | Click **Save & Close** to save the Registration Settings document. | Focus is returned to the Policy document. |
| 9 | Press CTRL+S to save the Policy. Click the **Drop-down arrow** next to Registration, select the name of the new Registration Settings document, and click **OK**. | The name of the Registration Settings document appears in the field. |
| 10 | Click **Save & Close**. | |

# Creating and Assigning an Explicit Policy

Worldwide also requires a policy for certain users who are allowed the option of using their Notes IDs without a password.

## Create an explicit policy

Follow these steps to create an explicit policy which can later be assigned to specific users or groups.

| Step | Action |
|------|--------|
| 1 | In the Domino Administrator, select the **Configuration** tab. |
| 2 | In the **Tools** pane, choose **Policies→Create**. |
| 3 | Select **Policy** and click **OK**.<br>**Result:** The Policy document displays. |
| 4 | For **Policy Name**, enter Password Optional. |
| 5 | For **Policy Type**, select **explicit**. |
| 6 | Locate the Registration section, and click **New** in that row.<br>On the Warning, click **Yes**.<br>**Result:** The Registration Settings document displays. |
| 7 | In the new Registration Settings document, perform the following.<br>■ On the **Basics** tab:<br>　■ For **Policy Name**, enter Reg optional password <your initials>.<br>　■ For **Choose a registration server**, select your server.<br>　■ For **Choose a Password Quality**, select **Password is Optional (0)**.<br>■ On the **Mail** tab, for **Choose the mail server**, select your server. |
| 8 | Click **Save & Close** to save the Registration Settings document.<br>**Result:** Focus returns to the Policy document. |
| 9 | Press CTRL+S to save the Policy, then click the small triangle next to Registration and select **Reg optional password <your initials>**. |
| 10 | Click **Save & Close**. |

## Creating and Assigning an Explicit Policy...*(continued)*

### Assigning policies during user registration

Follow these steps to assign an explicit policy to a user during user registration.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the server to administer. |
| 2 | Select the **People & Groups** tab→**Domino Directories** section→your directory section→**People** view. |
| 3 | On the Tools pane, choose **People→Register**. |
| 4 | Ensure that the appropriate certifier ID file is selected, enter its password, and click **OK**. |
| 5 | Read the warning that selecting this certifier ID will invoke its organization policy, and click **OK**. |
| 6 | On the Basics panel, perform the following steps:<br>■ Ensure that the registration server specified in the Organization policy is selected.<br>■ Enter a First name and Last name. |
| 7 | Click **Policy Synopsis**, note the PasswordQuality setting, and click **OK**. |
| 8 | For Explicit Policy, select the appropriate explicit policy. |
| 9 | Click **Policy Synopsis**, verify that the value of the PasswordQuality setting has changed, and click **OK**. |
| 10 | Click **Advanced**. |
| 11 | Click **ID Info** and verify that the following are correct:<br>■ The Certifier ID file<br>■ The options for storing the user ID |
| 12 | Click ✓ to add the user to the queue. |
| 13 | Select the user in the queue and click **Register**. |
| 14 | Click **OK** when prompted that the person was registered. |
| 15 | When registration is complete, click **Done**. |

# Viewing Policies and Assigning Policies to Existing Users

There are various methods to assign explicit policies and view the effective policy of existing users. The effective policy is the combined collection of settings from different policies that apply to a user.

## Assigning an explicit policy to existing users

During the demonstration, the instructor assigned a policy as a user was being registered. The Tools pane in Domino Administrator provides two methods to assign an explicit policy to an existing user:

- In the **People** view, by choosing **People→Assign Policy**.
- In the **Groups** view, by choosing **Groups→Assign Policy**.

Both methods set the explicit policy in the Person document(s).

## Displaying an effective policy for existing users

Also during the demonstration, the instructor displayed the Policy Synopsis for the user who was about to be registered. There are two methods to display effective policies:

- In the People view, by selecting a Person document and choosing **Policy Synopsis**.
- On the Configuration tab, by selecting one of the following views:
  - **Polices→by Settings**, or
  - **Polices→by Hierarchy**

For more information on Policies, the Policy Viewer, and Policy Synopsis, refer to the Domino Administrator 6 Help.

# Safeguarding ID Files

Domino includes the ability to automate ID file backup. This process:

- Backs up ID files at various times, not only at initial user registration.
- Recovers an ID from backup.
- Unlocks a user ID when the password is unknown.
- Permits specifying multiple administrative passwords to unlock the ID.

## Subsequent backing up of existing ID files

ID files with recovery information are automatically backed up after any of the following major changes to the ID file:

- Registering a new user
- Accepting new recovery information
- Generating a new public key
- Processing a name change
- Creating a new document encryption key

## Checklist: Backing up ID files

Complete the following tasks to set up ID file backup.

|  | Task | Procedure |
|---|---|---|
| ❑ | 1 | Configure certifier ID and database to store IDs. |
| ❑ | 2 | Update recovery information for existing IDs.<br>**Note:** This is a two-part process requiring intervention by both:<br>■ An administrator<br>■ The user |

# How to Set Up ID File Backup

This procedure sets up administrators to unlock an ID. It also create the mail-in database to store ID recovery information.

## Task 1: Configuring the certifier ID and database to store IDs

Follow these steps to specify administrators authorized to recover ID files for a particular certifier ID file.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the **Configuration** tab. |
| 2 | On the Tools pane, choose **Certification→Edit Recovery Information**. |
| 3 | Click **Server**, select the server on which to locate the Certificate document in the Domino Directory, then click **OK**. |
| 4 | Select **Supply certifier ID and password**. Click **Certifier**, select the certifier ID file, and click **Open**. |
| 5 | Click **OK**. |
| 6 | Enter the certifier ID's password, and click **OK**. |
| 7 | Click **Add**. |
| 8 | Select the appropriate administrator's name, then click **Add**. |
| 9 | Repeat Step 8 for each authorized administrator. |
| 10 | Click **OK** when finished adding administrator's names. |
| 11 | Do one of the following:<br>■ Select **I want to use an existing mailbox**.<br>　a. Click **Address**.<br>　b. Select a user or mail-in database.<br>　c. Click **OK**.<br>■ Select **I want to create a new mailbox**.<br>　a. Click **Address**.<br>　b. Select the server to store the database.<br>　c. In the Mail Title field, enter a database title.<br>　d. In the File Name field, enter a database file name.<br>　e. Click **OK**. |
| 12 | Enter the number of recover authorities required to unlock an ID file. |
| 13 | Click **OK**. |
| 14 | Click **Yes** to confirm saving the recovery information. |
| 15 | Enter the certifier ID password, and click **OK**. |

# How to Initiate Backup of Existing IDs

## Task 2: Updating recovery information for existing IDs

This procedure sends mail to the user requesting ID backup information from the user's ID file. Follow these steps to request backup information from existing users.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the **Configuration** tab. |
| 2 | On the **Tools** pane, choose **Certification→Edit Recovery Information**. |
| 3 | Click **Server**, select the server on which to locate the Certificate document in the Domino Directory, then click **OK**. |
| 4 | Select **Supply certifier ID**. Click **Certifier**, select the certifier ID file, and click **Open**. |
| 5 | Click **OK**. |
| 6 | Enter the password, and click **OK**. |
| 7 | Click **Export**. |
| 8 | Enter the certifier ID's password, and click **OK**. |
| 9 | Enter the names of users to which the request will be sent in the **To** field, then complete any other optional fields to send recovery information to the user. **Note:** Notes will use default information for any fields left blank. |
| 10 | Click **Send**. **Result:** Backup file information is automatically included in the body of the message sent by the administrator. |
| 11 | Click **OK** to close the **Edit Master Recovery Authority List** dialog box. |

Next, the user follows these steps.

| Step | Action |
|------|--------|
| 1 | Open the mail message from the administrator. |
| 2 | Choose **Actions→Accept Recovery Information**. |
| 3 | Enter the password, and click **OK**. |

# How to Restore User Access

The user and administrator both play roles in restoring user access.

## Checklist: Recovering an ID file

The user and the administrator complete these tasks to recover an ID file.

| | Task | Procedure |
|---|---|---|
| ❑ | 1 | User requests to unlock an ID file. |
| ❑ | 2 | Administrator provides password for ID file recovery. |

## Task 1: User requests to unlock an ID file

In this Guided Practice, you will act as the user, Michelle Grassi. The user follows these steps at the same time the administrator performs Task 2 to unlock the ID file. The instructor will act as the administrator and provide you with the recovery password.

| Step | Action |
|---|---|
| 1 | Open your administrator's mail file. |
| 2 | Open the mail message from Doctor Notes, and detach Michelle Grassi's ID file to the \Notes\Data\Ids\People directory. |
| 3 | Close Domino Administrator, and the Notes client, if running. |
| 4 | Start the Notes client. |
| 5 | When prompted for a password, click **OK**. |
| 6 | Click **Recover Password**. |
| 7 | Select **\Notes\Data\Ids\People\MGrassi.id**, and click **Open**. |
| 8 | The instructor will demonstrate the *Task 2: Administrator provides password for ID file recovery* procedure to obtain the first password. |
| 9 | Enter the password provided by the instructor, and click **Enter**. **Note:** For additional passwords, repeat Steps 8 and 9. |
| 10 | Enter and confirm a new password, and click **OK**. |

**Note:** If the ID file is lost, the user must request that the administrator detach the ID file from the Backup IDs database, and make it available to the user through a diskette, network location, or alternate e-mail address.

**How to Restore User Access...**(continued)

### Task 2: Administrator provides password for ID file recovery

Follow these steps to provide the user with the recovery password.

| Step | Action |
|------|--------|
| 1 | Detach the backup copy of the user's ID from the user in the Mail-in database. |
| 2 | From Domino Administrator, select the **Configuration** tab. |
| 3 | On the Tools pane, choose **Certification→Extract Recovery Password**. |
| 4 | Enter the administrator's password, and click **OK**. |
| 5 | Select backup ID file, and click **Open**. |
| 6 | Repeat the recovery password displayed in the dialog box to the user. |

**Best Practice: Secure the new ID**

Once an ID file has been recovered, users should:

■ Regenerate the ID file recovery information by accepting new recovery information or re-accepting the recovery information previously sent by the administrator.

■ Generate a new Notes key pair to limit the chance of someone being able to use a stolen ID file.

# Registering Users Exercise

In this exercise you will register users with options learned in this lesson.
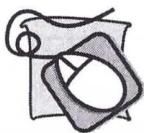
## Register users

Register two users using the following information:

- **Name**: Make up a name for each user.
- **Certifier ID**: East.id or West.id.
- **Policy**: Specify the explicit policy for one user. Allow the other user to have the organizational policy.
- **Registration Server**: Your server.
- **Mail Server**: Your server.
- **Group**: The group you created earlier.

## Why was the mail server blank?

In the Registration dialog box, the mail server was blank because the policies do not specify a mail server. Policies override the administration preferences. However, you were able to manually select a mail server.

# Platforms and Requirements

The Release Notes for each version of Domino contain a section on supported platforms and system requirements.

## Locating supported platforms and system requirements

Follow these steps to locate information on supported platforms and system requirements.

| Step | Action |
|------|--------|
| 1 | In Domino Administrator, select the **Files** tab. |
| 2 | Click the **Help** folder. |
| 3 | Double-click **Readme.nsf**. |
| 4 | At the top of the Navigator pane, click **By Category**. |
| 5 | Click **Things you need to know** category→**Platforms and requirements** subcategory. |
| 6 | Read the document titled *Notes and Domino 6 platforms & system requirements*, and other documents applicable to your environment. |

# Deployment Tasks Implemented

Several deployment tasks were implemented in this lesson to set up users on Notes clients.

## Checklist: Building the Domino environment

The bolded tasks in the Implementation Checklist were completed in Lesson 4.

| | Task | Procedure |
|---|---|---|
| ❏ | 1 | Set up the first server. |
| ❏ | 2 | Add an administrator's workstation. |
| ❏ | 3 | Set up access to the Domino Directory. |
| ❏ | 4 | Add Domino servers. |
| ❏ | 5 | **Add Organizational Units.** |
| ❏ | 6 | **Register administrators.** |
| ❏ | 7 | **Add Notes clients.** |
| ❏ | 8 | **Create user groups.** |
| ❏ | 9 | **Create organizational policy.** |
| ❏ | 10 | **Register users.** |
| ❏ | 11 | Set administration preferences. |
| ❏ | 12 | Set up access to servers. |
| ❏ | 13 | Set up server logging. |
| ❏ | 14 | Synchronize Domino system databases throughout the domain. |
| ❏ | 15 | Route mail internally. |
| ❏ | 16 | Route mail to the Internet. |
| ❏ | 17 | Set mail controls. |
| ❏ | 18 | Test mail routing and delivery. |

# Setting Up Administration for the Domino Environment

**Lesson 5** Setting Up Server Administration

**Lesson 6** Synchronizing Domino System Databases
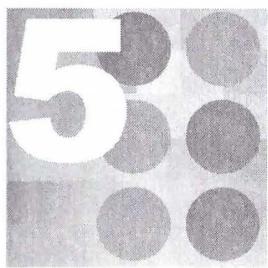
# Setting Up Server Administration

Administrators require access to perform administrative tasks. Worldwide Corporation will use groups to facilitate managing administrators' access to perform administrative tasks, such as:

■ Access the server.

■ Administer the server.

■ Add or modify server connection information.

Additionally, administrators need to configure the tools they will use to administer the server.

## Objectives

Upon completion of this lesson, you should be able to:

✓ Specify administration preferences.

✓ Allow and restrict server access.

✓ Allow administrators access to the Domino Directory.

✓ Specify the level of detail recorded in the Domino Server Log.

# Selecting Administration Preferences

Administrators can customize the Domino Administrator work environment by selecting administration preferences. These preferences include the following choices:

- The domains to administer
- The type and order of file information displayed
- The way in which Domino collects and displays server monitoring data
- The defaults to use when registering users, servers, and certifiers

## Select domain and registration preferences

Follow these steps to set the default settings for administering servers from Domino Administrator.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, choose **File→Preferences→Administration Preferences**. |
| 2 | On the **Basics** panel, if the domain is not already set, click **New**, then enter the following information:<br>■ **Domain Name:** WWCorp<br>■ **Domino directory server:** Your assigned server name<br>■ Select **Change to this location** and select **Office (Network)**.<br>Click **OK**. |

### Selecting Administration Preferences...*(continued)*

## Select domain and registration preferences...

| Step | Action |
|------|--------|
| 3 | On the **Registration** panel, make the following selections:<br>■ Click **Registration server**, enter your assigned server, and click **OK**.<br>■ Click **Mail options**. Click **Mail Server**, select your assigned mail server as the default mail server, and click **OK**.<br>■ Leave the other default mail settings, and click **OK**.<br>■ Leave the default ID file settings.<br>■ Click **Certifier ID**, select your OU certifier ID file, and click **Open**.<br>  ■ Enter `lotusnotes` for the **certifier ID's password**, and click **OK**.<br>  ■ Click **Yes** to let the organizational policy for */WWCorp override the registration preferences you set.<br>**Result:** The options buttons disappear. The values you just set for registration preferences will not be used, because the corresponding values in the policy take precedence.<br>**Note:** To override the policy's settings, change individual entries in the **User Registration** dialog box during registration. |
| 4 | Click **OK** to close the **Administration Preferences** dialog box. |
| 5 | In the **Bookmarks** pane, select your assigned server from the servers list. |

## Add your user ID to the Location document

Administrators sometimes need to switch ID to a different user. The most efficient way to do this is to create a Location document for each user and specify the appropriate ID file in each Location document. Follow these steps to specify your user ID in the current Location document.

| Step | Action |
|------|--------|
| 1 | Choose **File→Mobile→Edit Current Location**. |
| 2 | Select the **Advanced** tab and, in the **User ID to switch to** field, click 🖉. Locate and select your assigned user ID file in the Notes client's data subdirectory. |
| 3 | Click **Save & Close**. |

# Color-Coding Messages in the Server Console

To differentiate messages that could indicate a need for administrator intervention, an administrator can select different colors for different message types.

## Customize colors in the server console

Follow these steps to customize colors in the server console.

| Step | Action |
|------|--------|
| 1 | From the Domino Administrator, select the **Server** tab→**Status** tab. |
| 2 | Select the **Server Console** view. |
| 3 | From the menu, choose **Live Console→Server→Console Attributes**. |
| 4 | (Optional) If configuring a different server's attributes, select the server. |
| 5 | Select a color attribute for the background and for each type of event. |
| 6 | Exit and restart the Administrator client to activate the changes. |

**Note:** The Domino Administrator console defaults to using the same color scheme as the Domino server console. To specify a different color scheme for each console, refer to the Domino Administrator 6 Help document titled *Customizing the appearance of the Domino server console and Domino Administrator console*.

# Controlling Server Access

Two Domino security options control different aspects access to Domino servers:

- **Domino authentication** is the process in which Domino compares the user and server ID files to verify that they share a certificate in common. Authentication occurs when a user or server attempts to communicate with a server.

- **Domino authorization** is controlled by fields in the Server document that list users and servers allowed to access the server.

## Server access lists

The following table describes some of the restrictions for authorizing server access. These fields are located on the Security tab in the Server document.

| To Allow/Restrict This Type of Server Access | Set This Field | Additional Notes |
|---|---|---|
| To limit access to only those users listed in the Domino Directory | Access server (Deselect the **users listed in all directories** checkbox.) | No (default) allows access from users and servers in other domains. |
| To explicitly allow people, servers, or groups access to this server and deny all others | Access server (Enter or select names under the word "and".) | If this field is left blank (default), there is no access restriction. If any names are entered, they will be the only users or servers that can access the server. |
| To explicitly deny people, servers, or groups access to this server | Not access server | This field is for explicit restrictions, such as a Deny access group, and takes precedence over the Access server field. |

**Controlling Server Access...**_(continued)_

## Deny server access to former employees

When people leave the company, nothing prevents them from taking copies of their IDs with them. To prevent them from accessing servers, create a group, such as **Terminations**, to include in the **Not access server** field.

Use the **Deny List only** group type for this group. Groups of this type appear only in the Deny Access Groups view in the Domino Directory, not in the Groups view. Also groups of this type cannot be used for any purpose other than server access.

**Controlling Server Access...**(continued)

## User access to the server

The following table describes the fields on the Security tab in the Server document that determine some of the privileges users have to access a server.

| To Allow Users or a Group This Type of Access | Edit This Server Access Field | Additional Notes |
|---|---|---|
| Create replica databases on this server. | Create new replicas | Blank allows no one. This field also applies to other servers creating replicas on this server. |
| Create databases on this server. | Create new databases & templates | Blank allows all. This field applies to other servers creating databases on this server. |

## Setting access to create databases on the server

Follow these steps to allow users the ability to create databases and replicas on the server.

| Step | Action |
|---|---|
| 1 | From Domino Administrator, select the server to administer. |
| 2 | Select the **Configuration** tab→**Server** section→**All Server Documents** view. |
| 3 | Select your server, and click **Edit Server**. |
| 4 | On the **Security** tab→**Server Access** section, enter the following information:<br>■ **Create databases & templates:** Specify users who should be able to create databases and templates on this server, or leave this field blank to allow all users.<br>■ **Create new replicas:** Specify users and servers who should be able to create replicas on this server. |
| 5 | Click **Save & Close**. |

# Activating Changes to Server Access Fields

The Domino server accepts commands from the console on the server machine, or from Domino Administrator on a workstation. Administrators can issue commands to the Domino server to perform many administration tasks, such as:

- Start or stop server tasks.
- Instruct a server task to perform a function.
- Change server configuration variables.
- Restart the server.

Settings changed in the Domino Directory usually activate within a few minutes. To activate a change immediately, a server restart may be required.

## Restarting the server

Follow these steps to restart the server remotely using Domino Administrator.

**Note:** This procedure works remotely only if the server ID is not password-protected, because the password prompt appears on the server machine.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the server to administer. |
| 2 | Select the **Server** tab→**Status** tab. |
| 3 | Select the **Server Console** view, and click **Live**. |
| 4 | Enter Restart Server, and click **Send**. |
| 5 | On the server machine, enter a password if prompted. |

**Use group names in Server documents**

- Use group names instead of user names in Server documents.

- Domino caches changes made to existing groups. Therefore, if the security restrictions fields contain group names, adding a user name to the group does not require restarting the server.

# Setting Administration Access

The **Server** document includes settings to designate levels of administrative access for different categories of administrators in the organization. For example, only a few people can be designated as Administrators, while other members of a team are designated as Database Administrators.

## Administration levels

The following table outlines the levels and their general rights.

|  | Enter Select System Commands | Full OS Access | General Administrative Tasks | Manage Databases | Use Remote Console | Use Some Console Commands |
|---|---|---|---|---|---|---|
| Full | X | X | X | X | X | X |
| Administrator |  |  | X | X | X | X |
| Database |  |  |  | X |  |  |
| Full Remote Console |  |  |  |  | X | X |
| View only |  |  |  |  |  | X |
| System | X | X |  |  |  |  |
| Restricted System | X |  |  |  |  |  |

## Setting administration levels

Administration levels are set on the **Server** document→**Security** tab. Follow these steps to modify the settings.

| Step | Action |
|---|---|
| 1 | From Domino Administrator, select the server to administer. |
| 2 | Select the **Configuration** tab→**Server** section→**All Server Documents** view. |
| 3 | Select your server and click **Edit Server**. |
| 4 | Select the **Security** tab. |
| 5 | In the **Administrators** section, enter the user or group name in the appropriate access field. |
| 6 | Click **Save & Close**. |

**Administering IBM Lotus Domino 6: Building the Infrastructure**

## Setting Administration Access...(continued)

## What are the Administration levels?

The following table describes the levels in more detail.

| Level | Description |
|---|---|
| Full Access Administrators | ■ Same rights as Administrators (below), plus:<br>　■ Manager access to all databases, regardless of ACL<br>　■ All programmability rights<br>　■ All passthru rights<br>　■ Issue operating system-level commands<br>■ Overrides the Deny Access list<br>■ Similar to **root** level access on UNIX |
| Administrators | Common Administrator tasks, for example:<br>■ Can issue any remote console command.<br>■ Perform database maintenance tasks.<br>■ Use message tracking and track subjects. |
| Database Administrators | Perform database maintenance tasks:<br>■ Set administration server in database ACLs.<br>■ Create, compact, and delete database replicas and master templates.<br>■ Maintain full-text indexes.<br>■ Maintain directories and links.<br>■ Maintain options, such as database quotas. |
| Full Remote Console Administrators | Can issue any remote console command. |
| View-Only Administrators | ■ Can use a safe subset of commands: (SHOW SERVER, SHOW TASKS).<br>■ Cannot affect server operation. |
| System Administrators | Can issue operating system commands. |
| Restricted System Administrators | Can issue restricted subset of operating system commands defined in the Server document. |
| Administer the server from a browser (Web) | For pre-Domino 6 servers only:<br>■ Permits using the Web Administrator client (WebAdmin.nsf) to administer the server.<br>■ Uses database ACL to define Web administration roles.<br>■ Honors new administrator access fields. |

**Setting Administration Access...** *(continued)*

## Full Access Administrator recommendations

This level is required only for system maintenance and troubleshooting tasks where all other administrators cannot gain access to the server. This access level should only be given to trustworthy people who truly need access to all databases on the server.

Given the powerful level of access that this setting allows, recommendations for this field are listed in the following table.

| Recommendation | Description |
|---|---|
| Leave the field blank. | No administrator has Full Access rights. |
| Create a special Full Access Administrator ID file. | For example, create an ID for `Full Admin/ Sales/WWCorp` and use that name in the Full Access Administrator field.<br><br>Administrators must login with or switch to this user ID to gain this level of access. |
| Disable Full Access Administrators in the Notes.ini file. | Set `SECURE_DISABLE_FULLADMIN=1`. This causes the server to ignore any values in the Full Access Administrator field in the Server document.<br><br>When access is required, remove the line from the file and restart the server. |

**Note:** An administrator who is configured to be Full Access Administrator must activate Full Access Administrator mode by choosing **Administration→Full Access Administration**.

## Administration levels and the Web Administrator

The HTTP server task routinely synchronizes the names listed in the **Full Access Administrators** or **Administrators** fields of the Web Server document with those listed on the Web Administration database (Webadmin.nsf) ACL.

To give an additional administrator access to the Web Administrator, add the name in one of those fields. Names that are not already on the ACL list are added with Manager access and all roles. If the HTTP server detects a name that is already in the ACL, it does not update the access rights.

# Setting Administration Access Exercise

In this exercise, you will restrict administration access so that some other students have View-only administration access to your server.

## Set administration access

Use these steps to configure this access and answer the questions on the next page.

1. On your **Server** document→**Security** tab, remove LocalDomainAdmins from the Administrators field. Then modify the administration levels to allow the access described in the following table.

| Users or Groups | Administrator Access Level |
|---|---|
| All admins in your OU<br>For example:<br>■ If you are in the East OU, enter<br>`*/East/WWCorp`<br>■ If you are in the West OU, enter<br>`*/West/WWCorp` | Administrators field |
| All admins in the other OU<br>For example:<br>■ If you are in the East OU, enter<br>`*/West/WWCorp`<br>■ If you are in the West OU, enter<br>`*/East/WWCorp` | View-only Administrators field |

2. Once everyone has updated their access, from your Domino Administrator client, restart your server before testing.

3. Select a server in the other OU and try to compact that server's replica of the the file named Busytime.nsf using both of the following two methods:

   ■ The **Server** tab→**Server console** view. Enter the following command:
   `Load Compact Busytime.nsf`

   ■ The **Files** tab by choosing **Tools** pane→**Database**→**Compact**.

**Setting Administration Access Exercise...**(continued)
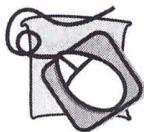
## Record administration access results

Answer the following questions as you work through the exercise.

- Was the Domino Administrator interface different when you changed servers?

- For the server in the other OU, what tasks could you perform?

- Were the results expected, based on the access settings?

# Recording Server Activity in the Log File

Domino adds information about server activity to a special database, the Domino Server Log (Log.nsf). Individual documents in the log file contain a history of server startups and activity.

## What does the Domino Server Log contain?

Domino automatically creates the Domino Server Log file, **Log.nsf**, when the server starts. The Domino Server Log contains information about server activity, such as:

- Mail routing events
- Replication events
- Server phone calls
- Session information
- Miscellaneous events
- Database usage
- User activity (if configured)

## Recorded level of detail
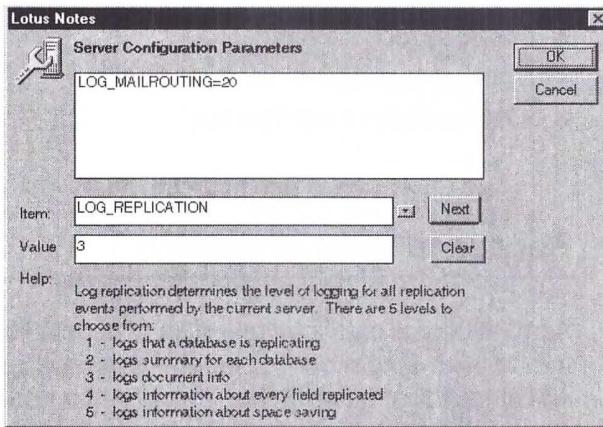
Administrators can specify the level of detail to record in the Domino Server Log in the Domino server configuration file, Notes.ini. At server startup, Domino uses the ASCII text configuration file, Notes.ini, to determine the Domino server environment. The installation and server setup programs populate the Notes.ini file based on the options selected during installation and server setup.

**Recording Server Activity in the Log File...**(continued)

## Set logging levels

Set the appropriate Notes.ini variables for logging by creating or editing a Configuration Settings document. Follow these steps to set logging levels.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the server to administer. |
| 2 | Select the **Configuration** tab→**Server** section→**All Server Documents** view. |
| 3 | Select your server and click **Edit Server**. |
| 4 | Verify that the **Group or Server name** field contains your assigned server name. |
| 5 | Select the **NOTES.INI Settings** tab. |
| 6 | Click **Set/Modify Parameters**. The following dialog box appears:<br> |
| 7 | For the **Item** field, click ▾ to select the **LOG_MAILROUTING** variable, and click **OK**. |
| 8 | Read the Help information on this dialog box to learn what details are added for each increase in logging level. |
| 9 | Enter an appropriate value and click **Add**. |
| 10 | Repeat Steps 7 through 9 to set each of the following logging variables:<br>■ Log_Replication<br>■ Log_Sessions<br>■ Log_Tasks<br>■ Log_View_Events |
| 11 | Click **OK** when finished setting variables. |
| 12 | Click **Save & Close** on the Configuration Settings document. |

# Deployment Tasks Implemented

This lesson implemented tasks that facilitate administration and control server access.

## Checklist: Building the Domino environment

The bolded tasks in the Implementation Checklist were completed in Lesson 5.

| | Task | Procedure |
|---|---|---|
| ❑ | 1 | Set up the first server. |
| ❑ | 2 | Add an administrator's workstation. |
| ❑ | 3 | Set up access to the Domino Directory. |
| ❑ | 4 | Add Domino servers. |
| ❑ | 5 | Add Organizational Units. |
| ❑ | 6 | Register administrators. |
| ❑ | 7 | Add Notes clients. |
| ❑ | 8 | Create user groups. |
| ❑ | 9 | Create organizational policy. |
| ❑ | 10 | Register users. |
| ❑ | 11 | **Set administration preferences.** |
| ❑ | 12 | **Set up access to servers.** |
| ❑ | 13 | **Set up server logging.** |
| ❑ | 14 | Synchronize Domino system databases throughout the domain. |
| ❑ | 15 | Route mail internally. |
| ❑ | 16 | Route mail to the Internet. |
| ❑ | 17 | Set mail controls. |
| ❑ | 18 | Test mail routing and delivery. |

# Synchronizing Domino System Databases

The Domino Directory is the central database in the Domino domain, and exists on every server in the domain. When administrators add servers and users to the Domino environment, those servers and users must appear in the Domino Directory on every server. A process called Replication keeps the Domino Directory synchronized on all servers in the domain.

In addition to the Domino Directory, there are other databases that Domino uses to function properly, such as the Certification Log, that need to be synchronized on all servers in the domain. Other Domino applications used by the organization, such as workflow, tracking, and discussion databases, also need replication.

Worldwide Corporation has planned a replication strategy to keep Domino system databases synchronized across all servers in the domain.

## Objectives

Upon completion of this lesson, you should be able to:

✓ Create a group for server replication.
✓ Set up the replication schedule to synchronize Domino system databases in the domain.

# Synchronizing Domino Databases

Replicas of a database can reside on different servers, enabling users to collaborate without having to use the same server. Replication synchronizes the changes made on these replicas, so that each replica has the required documents.

## Controlling replication

**Replication** is the controlled synchronization between database replicas. The following types of controls enable an administrator to fine-tune the synchronization, which may include documents, design, and security changes.

| Control | Purpose |
|---------|---------|
| Replication type | Replication type defines which servers do the work of replication. |
| Database priority | The Replication Settings dialog box contains a setting to indicate whether a database is high, medium, or low priority. |
| Connection documents | Connection documents can:<br>■ Control replication type.<br>■ Schedule replication timing.<br>■ Control which databases replicate by:<br>  ■ Listing specific databases and/or subdirectories.<br>  ■ Specifying that databases of a certain priority will replicate. |
| Selective replication | Selective replication defines which documents replicate. |
| Server access | Fields in the Server document control access to the server. |
| Access Control List | Each replica's ACL controls which servers can make changes to the replica. |
| Element access | Controls can be placed on documents and design elements to prevent certain servers from replicating specific elements. |

# Considerations for the Best Replication Topology

Worldwide will consider several factors in determining a replication topology. Some of the factors require consideration of location, network topology, and system resources.

## Using multiple replication hubs

For domains with multiple servers, especially those separated by distance or network topology, multiple replication hubs can be beneficial. For example, Worldwide could create Connection documents so that:

■ All servers in the East region replicate to East06.

■ All servers in the West region replicate to West06.

■ East06 and West 06 replicate with Hub.

## Replication timing with multiple hubs

Timing replication is even more important with multiple hubs. Four replications are required to replicate a document created on a spoke to a spoke in the other region. For example, with multiple hubs, changes made on East03 would require the following replications before the changes reach West03:

1. East03 replicates with East06 (the regional hub for the eastern region).
2. East06 replicates with Hub.
3. Hub replicates with West06 (the regional hub for the western region).
4. West06 replicates with West03.

## Considerations for the Best Replication Topology...*(continued)*

### A look at the multiple-hub scenario

The following diagram represents a possible scenario for Worldwide Corporation. The regional hubs replicate with the Hub at headquarters. Then the regional Hubs replicate with servers in their region.
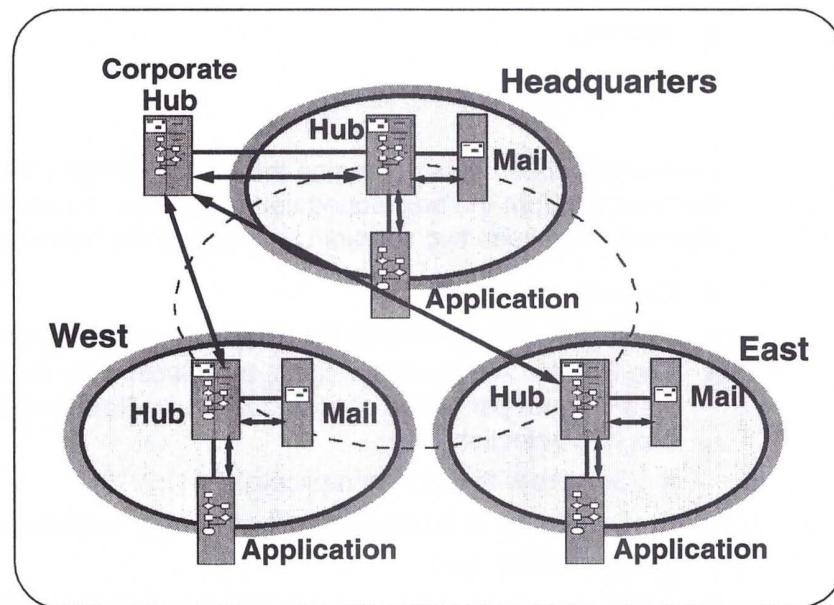


Worldwide Corporation may consider using regional replication hubs. However, in the classroom, each server will replicate directly with the hub server for the following reasons:

**Classroom Scenario**

- More hands-on experience
- Simpler schedule management

**Considerations for the Best Replication Topology...**(*continued*)

## Replication types

Domino supports the following four types of replication:

- Pull Pull
- Pull Push
- Pull only
- Push only

Connection documents determine the replication type. If changes need to be distributed before the next scheduled replication, an administrator can force replication between two servers using one of the following:

- Console commands.
- Console commands and a text file listing servers and databases to replicate.
- The Domino Administrator client, by selecting the **Server** tab→**Server tasks** view→**Tools** pane, and choosing **Server**→**Replicate**. This displays a dialog box with selections of:
  - Servers with which to replicate
  - Databases to replicate (or all databases in common)
  - Replication type
- The Notes client or Domino Administrator client, by selecting the database to replicate and choosing **File**→**Replication**→**Replicate**, and selecting the server with which to replicate.

## Pull Push replication

The default replication type is Pull Push, which performs bidirectional replication and requires only one Connection document between the source and destination servers.

Using the Pull Push replication type, the initiating server's Replicator pulls changes from the called server and then pushes changes to the called server. The initiating server's Replicator does all the work, writing in both servers.

For information on the other replication types, refer to the Domino Administrator 6 Help.

**Considerations for the Best Replication Topology...**(continued)

## The advantage of streaming replication

**Streaming replication** allows the replicator task to send multiple changes in one request and replicate smaller documents first. This is preferable because:

■ It is faster than non-streaming replication.

■ It allows users to use documents replicated first, while replication continues.

## How and when to use streaming replication

Streaming replication requires no additional configuration, but is only used when the replication type is Pull Pull or Pull only. The work of pulling changes from another server requires sufficient resources. Therefore, spoke servers must have the capacity to handle half of the load of Pull Pull replication.

■ In Pull Push topology, the Hub server does all the work.

■ In Pull Pull topology, the Hub server and the spoke servers handle the load equally.

**Classroom Scenario**

Worldwide Corporation will use Pull Push replication between the Hub and the regions. They would have preferred to use Pull Pull replication to take advantage of streaming replication, but have determined that the current spoke servers are operating at their maximum capacity, and should not have additional demands.

# Creating a Group for Server Replication

The most efficient method of scheduling replication is to use server groups as the destination points for replication.

## Use server groups for replication

As seen previously, using groups for server access and database access facilitates administration. Administrators can also use groups to schedule replication from one server to a group of servers. Using a group for server replication facilitates administration by:

■ Reducing the number of Connection documents required to replicate with multiple servers

■ Simplifying the process of including a new server in the replication topology

## Server group example

The following diagram illustrates the benefit of using a server group for replication.



**One** Connection document;
Destination server: East Mail Servers

where East Mail Servers is a group consisting of the following members:
■ East01
■ East02
■ East03

**Three** Connection documents;
1. Destination server: East01
2. Destination server: East02
3. Destination server: East03
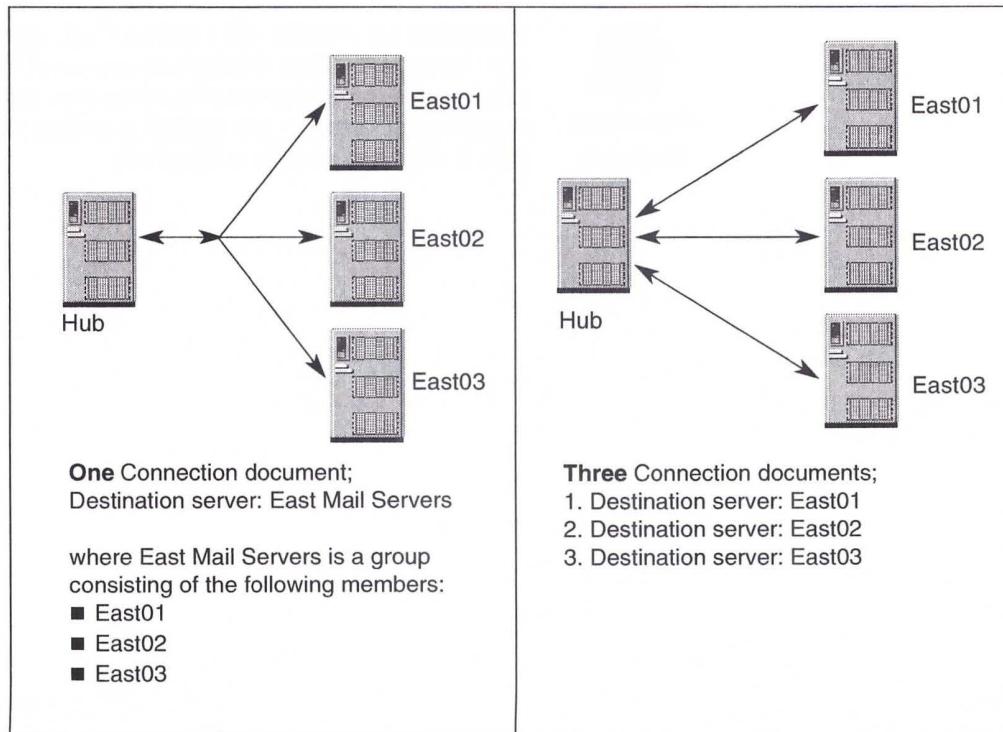
## Creating a Group for Server Replication...(continued)

### Creating the groups for replication

The classroom implementation calls for two server groups for replication:

■ One group for the servers in the eastern region, created by the instructor.

■ One group for the servers in the western region, also created by the instructor.

Follow these steps to create the assigned groups.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your assigned server to administer. |
| 2 | Select the **People & Groups** tab→**Domino Directories** section→**WWCorp's Directory** section→**Groups** view. |
| 3 | Click **Add Group**. |
| 4 | Enter the appropriate group name. |
| 5 | Select the **Servers only** Group type. <br>**Note:** This is the only group type that will work to replicate with a group of servers using a Connection document. |
| 6 | Enter a description of the group's purpose. |
| 7 | Enter (or select) the appropriate server names for members of the group. |
| 8 | Click **Save & Close**. |

**Classroom Scenario**

Worldwide Corporation may consider using server groups in all Connection documents. In the classroom, each student will create a unique Connection document to replicate directly with the hub server.

# Scheduling Replication

An administrator uses Connection documents to schedule replication between servers.

## Review of the classroom replication topology

The following items define Worldwide's implementation of replication.

| Item | Deployment Plan |
|---|---|
| Establish a replication topology. | Hub-and-spoke topology |
| Which server will initiate the call? | Hub |
| Which server will receive the call? | Spoke |
| On which port will this session happen? | TCPIP |
| Which database(s) will be replicated? | ■ Domino Directory (Names.nsf)<br>■ All other databases in common |
| What priority of databases will be replicated? | All priorities |
| What replication types would be best? | Pull Push |
| At what times will replication occur? | ■ Domino Directory, every two hours<br>■ All other databases, every six hours |
| Is there a time limit for replication? | No |

## Scheduling critical applications

Most companies should schedule the Domino Directory (Names.nsf), to replicate regularly throughout the day. Then, schedule all other databases to replicate at a less frequent time interval. Keep in mind that databases will only replicate if there are changes to distribute.

For applications that are critical to the success of the business, consider one of the following options:

- Specify a replication priority of **high** for critical applications, then create a Connection document specifying high priority databases with a short interval.
- Place critical applications in a separate subdirectory under the Domino\data directory, then create a Connection document specifying this subdirectory to replicate at a short interval.

## Scheduling Replication...*(continued)*

### Tip: Replicate based on change

■ Set up a Connection document to replicate all databases under the Domino\data directory at a regular interval.

■ This connection will not consume any additional system resources, as databases only replicate if there are changes to distribute.

## Replication schedule criteria

Worldwide Corporation's replication schedule requires the following:

■ All databases under the Domino\data directory replicate every six hours to all servers.

■ The Domino Directory (Names.nsf) replicates every two hours to all servers.

■ The replication type is Pull Push.

## Creating a Connection document

Follow these steps to create Connection documents to schedule replication.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the server to administer. |
| 2 | Select the **Configuration** tab→**Replication** section→**Connections** view. |
| 3 | Click **Add Connection**. This image shows a completed Connection document: <br><br>**Server Connection** : Hub/WWCorp <br><br> Basics \| Replication/Routing \| Schedule \| Comments \| Administration \| <br><br> **Replication**            **Routing** <br> Replication task:   Enabled       Routing task:   -None- <br> Replicate databases of:   Low & Medium & High priority <br> Replication Type:   Pull Push <br> Files/Directory Paths to Replicate:   Names.nsf [all if none specified] <br> Files/Directory Paths to NOT Replicate: <br> Replication Time Limit:   minutes <br><br> **AutoDialer** <br> Use AutoDialer to connect remote server to network:   Disabled <br> AutoDialer connection name: |

**Scheduling Replication...**(continued)

## Creating a Connection document...

| Step | Action |
|------|--------|
| 4 | On the **Basics** tab, select a Connection type. |
| 5 | Enter values or verify that the **Source server** and **Source Domain** fields are correct. |
| 6 | Enter the **Destination server** or server group, and **Destination domain**. |
| 7 | Click **Choose ports**, select the ports to use for this connection, and click **OK**. |
| 8 | On the **Replication/Routing** tab, enter information in the appropriate fields according to the following descriptions. |

| Field | Description |
|-------|-------------|
| **Replication Task** | Set to **Enabled**. |
| **Replicate databases of ___ priority** | The priority of the databases to be replicated for this schedule. |
| **Replication Type** | The type of replication to be used for this schedule. The default is Pull Push. |
| **Files/Directories to Replicate** | The specific databases or directories containing databases to replicate. A blank field results in all databases in common in the Domino\data directory structure replicating for this schedule. |
| **Replication Time Limit** | If this field has a value in it and the replication is not complete at the end of the specified time, or if the server crashes, then replication will begin where it left off once schedule replication restarts. |

| Step | Action |
|------|--------|
| 9 | On the **Schedule** tab, enter the information in the appropriate fields according to the following descriptions. |

| Field | Description |
|-------|-------------|
| **Schedule** | Set to **Enabled**. |
| **Connect at times** | Specifies either one discrete time, a list of times (each separated by a comma), or a time range. |
| **Repeat interval of** | Specifies the frequency of calls over the time range. |
| **Days of week** | Specifies the days of the week that the schedule should run. |

| Step | Action |
|------|--------|
| 10 | Click **Save & Close**. |

# Replicating Selected Databases Exercise

In this exercise you will establish a more frequent replication schedule for the Domino Directory.
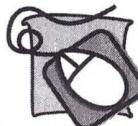
## Create a Connection document for the Domino Directory

Create a Pull Push Connection document on your server using the following information.

| Source Server | Destination Server | Databases to Replicate | Repeat Interval |
|---|---|---|---|
| Hub/SVR/WWCorp | Your server | Names.nsf | 120 minutes |

# Monitoring the Replication Schedule Exercise

The following changes have been made to the Domino Directory:

■ Two new server groups: East Mail Servers and West Mail Servers
■ New Connection documents:
  ■ Hub→East Mail Servers; all databases in common
  ■ Hub→West Mail Servers; all databases in common
  ■ Hub→<each server>; Names.nsf

Each student made changes to the Domino Directory on different servers. Therefore, all documents do not appear in the Domino Directory on all servers in the domain.
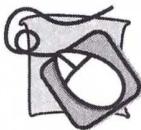
## Replicate the Connection documents

Since all servers in the domain should synchronize the Domino Directory, all administrators should force replication of the Domino Directory with Hub/SVR/ World to distribute the Connection documents.

**Note:** Once the Connection documents appear in every Domino Directory, the replication schedule is in place. Domino will replicate based on the schedule information in the Connection documents.
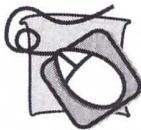
## Use the Replication Tools

In Domino Administrator, perform the following:

■ Ensure that the Maps extractor task is running and view the Replication Topology maps by using the **Server** tab→**Status** tab→**Server Tasks** view.
■ Graphically display the replication schedule by using the **Replication** tab→ **Replication Maps**→**By Connections** view.
■ Confirm which replication events have occurred by using the **Replication** tab→**Replication Events** view.

# Deployment Tasks Implemented

The tasks implemented in this lesson ensures that replicas on all servers have the same information.

## Checklist: Building the Domino environment

The bolded task from the Implementation Checklist was completed in Lesson 6.

| | Task | Procedure |
|---|---|---|
| ☐ | 1 | Set up the first server. |
| ☐ | 2 | Add an administrator's workstation. |
| ☐ | 3 | Set up access to the Domino Directory. |
| ☐ | 4 | Add Domino servers. |
| ☐ | 5 | Add Organizational Units. |
| ☐ | 6 | Register administrators. |
| ☐ | 7 | Add Notes clients. |
| ☐ | 8 | Create user groups. |
| ☐ | 9 | Create organizational policy. |
| ☐ | 10 | Register users. |
| ☐ | 11 | Set administration preferences. |
| ☐ | 12 | Set up access to servers. |
| ☐ | 13 | Set up server logging. |
| ☐ | 14 | **Synchronize Domino system databases throughout the domain.** |
| ☐ | 15 | Route mail internally. |
| ☐ | 16 | Route mail to the Internet. |
| ☐ | 17 | Set mail controls. |
| ☐ | 18 | Test mail routing and delivery. |

# Setting Up the Messaging Infrastructure

**Lesson 7   Setting Up Intranet Mail Routing**

**Lesson 8   Setting Up Mail Routing to the Internet**

**Lesson 9   Establishing Mail Controls**
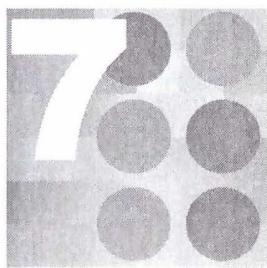
# Setting Up Intranet Mail Routing

IBM Lotus Domino 6 supports two mail routing protocols:

- The Internet standard, SMTP (Simple Message Transfer Protocol)
- Domino's native routing protocol, NRPC (Notes Remote Procedure Calls)

It is possible to use a combination of SMTP and NRPC within a corporation. For example, Worldwide Corporation will route mail within the company intranet using Domino's native routing protocol, NRPC, and route mail to the Internet using the SMTP protocol.

This lesson discusses how to configure Domino servers to route mail within the company intranet.

## Objectives

Upon completion of this lesson, you should be able to:

✓ Configure intranet Domino mail routing.
✓ Establish a mail routing schedule.
✓ Select a mail storage format.

# Worldwide's Intranet Mail Routing Architecture

**Classroom Scenario**

Worldwide Corporation's Intranet Mail Routing Architecture includes:

■ **Hub-and-spoke topology** - for mail routing as well as replication.

■ **Notes Remote Procedure Calls (NRPC)** - takes advantage of Domino features such as:

  ■ Sending document and database links via e-mail

  ■ Notes public key security

  ■ Mail-enabled workflow applications

■ The following **Domino Named Networks (DNNs)** to control when mail routes and to reduce network traffic between regions:

  ■ WWCorpHQ

  ■ WWCorpEast

  ■ WWCorpWest

## Classroom intranet (DNN) implementation

The Hub server will route mail between the DNNs and is in a separate DNN. The servers in East and West will be in separate DNNs to enable scheduling of mail routing between regions.
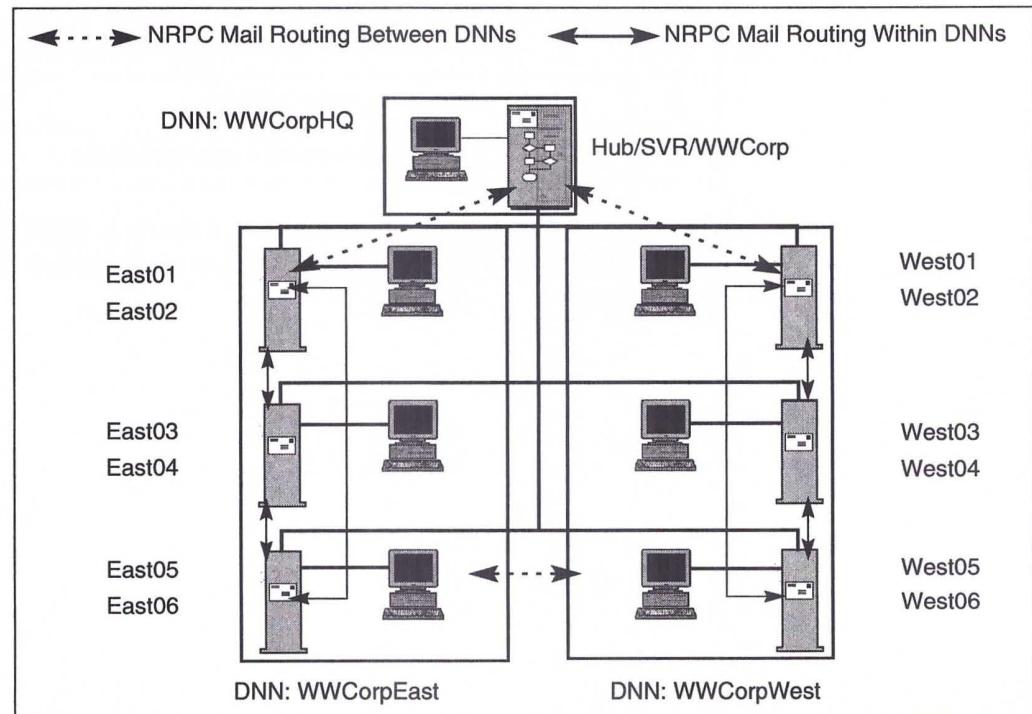
# How to Configure Intranet Mail Routing

An administrator has many controls over Domino mail routing. These are covered in *Module C: Setting Up the Messaging Infrastructure* and *Module D: Troubleshooting the Messaging Infrastructure.*

## Checklist: Configuring intranet mail routing

Complete these tasks to configure intranet mail routing.

|  | Task | Procedure |
|---|---|---|
| ❑ | 1 | Set up Domino Named Networks for mail routing. |
| ❑ | 2 | Schedule mail routing between DNNs. |
| ❑ | 3 | Select a mail storage format. |
| ❑ | 4 | Allow users access to run mail agents. |
| ❑ | 5 | Set mail flow restrictions. |
| ❑ | 6 | Set mail transfer controls. |
| ❑ | 7 | Set mail rules. |
| ❑ | 8 | Configure additional server mailboxes. |
| ❑ | 9 | Test and troubleshoot intranet mail routing. |
| ❑ | 10 | Enable message tracking. |
| ❑ | 11 | Test mail delivery to a user's mail file. |

**Note:** Tasks 5 through 8 are covered in *Lesson 9: Establishing Mail Controls.* Tasks 9 through 11 are covered in *Module D: Troubleshooting the Messaging Infrastructure.*

# Defining Key Mail Routing Components Exercise

In this exercise, you will provide either the missing term or the missing definition.

## Define mail routing components

Fill in the missing information in the following table either by providing a definition or by selecting the most appropriate term for the given definition.

| Term | Definition |
|---|---|
| Mail file | |
| Mail server | |
| Mailer | Resides on the workstation and performs these tasks:<br>■ Verifies the existence and spelling of the name(s) if the recipient is listed in the Domino Directory.<br>■ Converts the message to Multipurpose Internet Mail Extensions (MIME), if necessary.<br>■ Deposits the message in Mail.box on the sender's mail server. |
| Names | The Domino database that stores information about the sender's (and possibly recipient's) mail server, mail file system, mail file name, mail address, and connections to other servers for transfer and delivery. |
| Mail.box | IN - OUT messaging |
| Router | A server-based task that delivers and transfers mail. It checks the Domino Directory for connections to other servers and deposits mail in users' mail files and other servers' Mail.box. |

# Determining Current DNNs
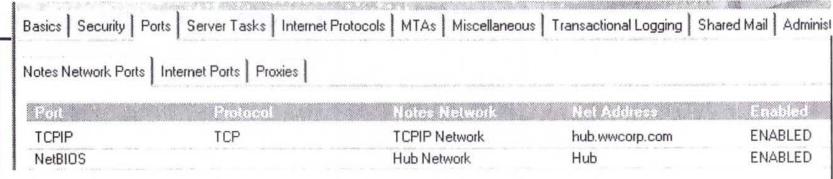
Servers in the same DNN route mail automatically. An administrator can separate servers into different DNNs and use Connection documents to establish a mail routing schedule.

## Determine current DNNs

Follow these steps to explore the current DNN for your server.

**Note:** DNNs are also referred to as Notes Named Networks in Domino Administrator 6 Help and the Server document.

| Step | Action |
|------|--------|
| 1 | Click the **Domain servers icon** [icon] to display the Server pane for the WWCorp domain. |
| 2 | Select the **Networks** section to see a list of DNNs in the domain. |
| 3 | View each section under Networks to determine the network to which your server belongs, and write the network name: |
| 4 | To see where the DNN is defined, perform these steps:<br>■ Select your server.<br>■ Select the **Configuration** tab→**Server** view→**All Server documents** view.<br>■ Select your Server document and click **Edit Server**.<br>■ Select the **Ports** tab→**Notes Network Ports** tab as shown below:<br><br>Basics \| Security \| Ports \| Server Tasks \| Internet Protocols \| MTAs \| Miscellaneous \| Transactional Logging \| Shared Mail \| Administ<br><br>Notes Network Ports \| Internet Ports \| Proxies \|<br><br>Port / Protocol / Notes Network / Net Address / Enabled<br>TCPIP / TCP / TCPIP Network / hub.wwcorp.com / ENABLED<br>NetBIOS / / Hub Network / Hub / ENABLED<br><br>Verify that the Notes Network name is the same as seen in Step 3. |
| 5 | Disable all ports other than TCPIP Network.<br>Click **Save & Close**. |

**Note:** Domino installation detects a machine's network protocols and enables a port for each. It is important to check the Notes Network Ports tab after installation, and disable unneeded ports.

# Setting Up Domino Named Networks

DNNs that have the same protocol can route mail to each other based on Connection documents. Worldwide Corporation has decided to create a separate DNN for each region.

## Create DNNs for regions

Follow these steps to edit the Server document and change the default DNN for classroom servers.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your server. |
| 2 | Select the **Configuration** tab→**Server** view→**All Server documents** view→**Current server document**→**Ports** tab→**Notes Network Ports** tab. |
| 3 | Select your Server document and click **Edit Server**. |
| 4 | To change the DNN, perform these steps:<br>a. In the **TCPIP** port row, enter WWCorpEast or WWCorpWest in the **Notes Network** field.<br>b. Verify that the TCPIP port is **Enabled**.<br>c. Accept the default for all other fields. |
| 5 | Click **Save & Close**. |
| 6 | Replicate the Domino Directory to update on all servers.<br>**Note:** Instructor will perform replication for all servers. |

**Tip:** If you have multiple protocols, it is good practice to choose a DNN name that describes the protocol or location of the servers, for example, TCPIP East or WWCorpWestNet.

## Setting Up Domino Named Networks...*(continued)*

### Update configuration

Follow these steps to update routing and SMTP configurations.

| Step | Action | Result |
|------|--------|--------|
| 1 | Select the **Server** tab→**Status** tab→**Server Console** view. | The server console appears. |
| 2 | Click **Live**. | The server console becomes active. |
| 3 | Enter `tell router update config` and click **Send**. | ■ Checks Domino Directory for changes and updates configuration.<br>■ Reloads routing tables.<br>■ Renumbers mailboxes. |
| 4 | Enter `tell smtp update config` and click **Send**. | Checks Domino Directory for changes and updates configuration. |

# Testing DNNs Exercise

To send mail to Notes users within the domain, users need only enter a recipient's name in one of the mail address fields. If users are in:

■ The same DNN, mail routes automatically.

■ A different DNN, mail routes based on Connection documents.

**Note:** The difference is transparent to users, except for a possible time delay for mail transfer to another DNN.

## How do Notes users address mail within the same domain?

The sender can enter any of the following recipient names when addressing a message to a user in the same domain:

■ Common name
■ Hierarchical name
■ Short name
■ Internet address
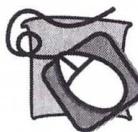
## Send messages to users

1. Send a message to a student in your DNN.
   ■ Did the user receive the message?
     Why or why not?


2. Send a message to Doctor Notes.
   ■ Did Doctor Notes receive the message?
     Why or why not?

# Routing Mail Between DNNs

Mail routes automatically within each DNN. When using multiple DNNs, Connection documents are required to enable mail routings between DNNs.

Configure Connection documents in the Domino Directory to set up communication between servers in other Domino Named Networks. The Connection documents include specific connection information, such as message threshold, and delivery schedule requirements.

## Hub-and-spoke mail routing topology

Worldwide Corporation is using a hub-and-spoke topology because hub-and-spoke is the most efficient way to distribute changes to databases.

Similarly, scheduling mail routing in a hub-and-spoke topology is the most efficient way to route mail between DNNs.

The following diagram shows how Domino would route mail between Worldwide Corporation's regions using a hub-and-spoke topology where each region is defined as a separate DNN.
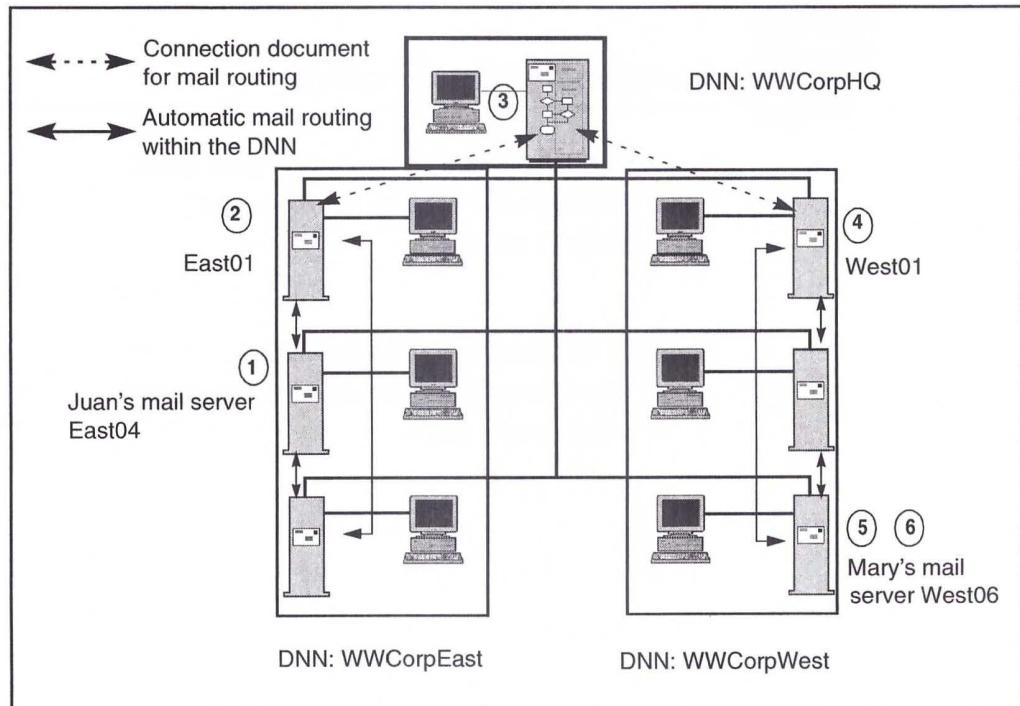
# Using Connection Documents

By default, both the mail routing and replication tasks are enabled in a single, new Connection document. When servers connect to replicate based on the schedule, Domino routes any pending mail. This is called **opportunistic routing**.

The replication schedule may be sufficiently frequent to replicate databases. However, it may not be sufficiently frequent to transfer mail between DNNs.

**Tip:** To optimize server connections, use opportunistic routing and create separate Connection documents with a shorter repeat interval for mail routing.

## Connection document mail routing options

The following table describes some of the fields on the Replication/Routing tab in the Connection document that determine how and when mail routes.

| Field | Description |
| --- | --- |
| Routing task | The task(s) for this connection, such as Mail routing. |
| Route at once if X messages pending | Routes Normal priority mail immediately, based on the number of pending messages. |
| Router type | The type of routing for this connection. Options are:<br>■ Push Only (Default) - Only sends mail to the other server.<br>■ Pull Only - Only receives mail from the other server.<br>■ Push Wait - Waits for the other server to call before sending. The server that does the requesting selects Pull Only or Pull Push.<br>■ Pull Push - Sends mail to the other server, then waits for the other server to send mail back. |

**Using Connection Documents...**(continued)

## All Router types require two Connection documents

When two servers route mail to each other, each server needs to have a Connection document to allow for two-way communication. Two Connection documents are required, one for each server.

Another form of opportunistic routing is to select Pull Push for one server and Push Wait for the other.

Pull Push and Pull Only are used for both Notes mail and SMTP mail.

## Worldwide's Connection documents

**Classroom Scenario**

- Worldwide is using the Push Only Router type for Connection documents so that routing intervals and times between regional servers can be controlled separately.
  - The schedule for East DNN servers will be set six hours ahead of the schedule for West DNN servers, to accommodate the time difference.
- Because Worldwide is using Push Only, the following two Connection documents are needed for each DNN:
  - One to push mail from the hub to a server in the DNN
  - One to push mail from the server in the DNN to the hub

# Scheduling Mail Routing

Worldwide now needs to establish routes between DNNs. The hub will act as intermediary between regions. Use Connection documents to route mail to and from the Hub server, since not all servers in the domain are in the same Domino Named Network.

## Implement the hub-and-spoke mail routing topology

The instructor will select two administrator teams from each region to create two Connection documents to route mail to and from the Hub. The four teams should follow these steps to implement the mail routing topology.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your server. |
| 2 | Select the **Configuration** tab→**Messaging** section→**Connections** view. |
| 3 | Click **Add Connection**. |
| 4 | Accept the default Local Area Network for the Connection type. |
| 5 | **Team 1:** In the **Source server** field, enter East01/SVR/WWCorp.<br>**Team 2:** In the **Source server** field, enter Hub/SVR/WWCorp.<br>**Team 3:** In the **Source server** field, enter West01/SVR/WWCorp.<br>**Team 4:** In the **Source server** field, enter Hub/SVR/WWCorp. |
| 6 | **Team 1:** In the **Destination server** field, enter Hub/SVR/WWCorp.<br>**Team 2:** In the **Destination server** field, enter East01/SVR/WWCorp.<br>**Team 3:** In the **Destination server** field, enter Hub/SVR/WWCorp.<br>**Team 4:** In the **Destination server** field, enter West01/SVR/WWCorp. |
| 7 | In the **Source domain** and **Destination domain** fields, enter WWCorp. |
| 8 | Click **Choose Ports** to select the TCPIP port to use for this connection, and click **OK**. |

### Scheduling Mail Routing...(continued)

## Implement the hub-and-spoke mail routing topology...

| Step | Action |
|------|--------|
| 9 | On the **Replication/Routing** tab, use pop-up field Help to view field descriptions, then make the following selections:<br>■ Disable the Replication task.<br>■ In the **Routing task** field, select **Mail Routing**.<br>■ In the **To route at once if 5 messages are pending** field, enter 1.<br>■ Accept the default **Routing cost**, **1**.<br>■ Select the default **Router type: Push Only** |
| 10 | On the **Schedule** tab, use pop-up field Help to view field descriptions, then make the following selections:<br>■ In the **Schedule** field, select the default: **Enabled**.<br>■ **Teams 1 and 2:** Change **Connect at times** to: 12:00 AM – 11:59 PM<br>■ **Teams 3 and 4:** Change **Connect at times** to: 6:00 AM – 11:59 PM<br>■ Change the **repeat interval** to 5 minutes.<br>■ Accept the default **Days of week**. |
| 11 | Click **Save & Close**. |

# Testing Connection Documents Exercise

In this exercise, you will verify that the Connection documents enable routing through the hub to the other DNN.
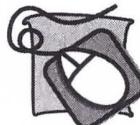
## Send messages to users

1. Send a message to a student outside of your DNN.
   - Did the user receive the message?
     Why or why not?


2. Send a message to Doctor Notes.
   - Did Doctor Notes receive the message?
     Why or why not?

# Selecting a Mail Storage Format

The server stores messages in the user's mail file on the mail server in either of the following mail formats:

- MIME (messages sent over SMTP are always sent in MIME format)
- Notes Rich Text

Domino converts messages between formats as needed based on the protocol and the settings selected by administrators for incoming and outgoing messages. Users can specify the outgoing mail format.

## Worldwide's mail storage format

Worldwide is allowing messages to stay in their existing format to minimize the work of conversion between MIME and Notes Rich Text format.

**Classroom Scenario**

## Select a mail storage format for incoming mail

Follow these steps to select the mail storage format for a user.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your server. |
| 2 | Select the **People & Groups** tab→**Domino Directories** section→**WWCorp's Directory** section→**People** view. |
| 3 | Select your Person document, and click **Edit Person**. |
| 4 | On the **Basics** tab:<br>■ Use the pop-up Help to view field definitions. |
| 5 | In the **Mail** section:<br>■ In the **Format preference for incoming mail** field, select **Keep in senders' format**. |
| 6 | Click **Save & Close**. |

**Selecting a Mail Storage Format...**(*continued*)

## Select a mail format for outgoing mail

The user's Location document (Mail tab) specifies the format to use for mail sent to Internet addresses: MIME or Notes Rich Text. A user can select this option, or an administrator can specify the outgoing mail format in a Setup Policy document.

# Deployment Tasks Implemented

In this lesson, we completed the following steps in the Intranet Mail Routing checklist:

- Set up Domino Named Networks for mail routing.
- Schedule mail routing between DNNs.
- Select a mail storage format.
- Allow users access to run mail agents.

## Checklist: Building the Domino environment

The bolded task from the Implementation Checklist was completed in Lesson 7.

| | Task | Procedure |
|---|---|---|
| ❑ | 1 | Set up the first server. |
| ❑ | 2 | Add an administrator's workstation. |
| ❑ | 3 | Set up access to the Domino Directory. |
| ❑ | 4 | Add Domino servers. |
| ❑ | 5 | Add Organizational Units. |
| ❑ | 6 | Register administrators. |
| ❑ | 7 | Add Notes clients. |
| ❑ | 8 | Create user groups. |
| ❑ | 9 | Create organizational policy. |
| ❑ | 10 | Register users. |
| ❑ | 11 | Set administration preferences. |
| ❑ | 12 | Set up access to servers. |
| ❑ | 13 | Set up server logging. |
| ❑ | 14 | Synchronize Domino system databases throughout the domain. |
| ❑ | 15 | **Route mail internally.** |
| ❑ | 16 | Route mail to the Internet. |
| ❑ | 17 | Set mail controls. |
| ❑ | 18 | Test mail routing and delivery. |

# Setting Up Mail Routing to the Internet

**Simple Messaging Transfer Protocol (SMTP)** is the industry standard Internet mail protocol. Domino supports native SMTP routing, Internet addressing, and native MIME content. Worldwide Corporation has decided to set up all mail servers to route mail to the Internet using SMTP.

This lesson discusses how to configure a Domino SMTP Router and set up Router controls to send mail to the Internet using the SMTP routing protocol.

## Objectives

Upon completion of this lesson, you should be able to:

✓ Enable SMTP routing.
✓ Configure basic and advanced settings for SMTP routing.
✓ Restrict mail flow to and from the Internet.

# Worldwide's Internet Mail Routing Architecture

**Classroom Scenario**

Worldwide Corporation is using the following for their Internet Mail Routing Architecture:

■ Simple Messaging Transfer Protocol (SMTP) to route mail to and from the Internet since SMTP is an industry standard Internet routing protocol native in Domino.

■ All servers in the classroom will be configured to route mail externally using SMTP. Mail servers will route through the Hub server. The Hub server will route mail to and from the Internet.

　■ All servers will have SMTP set externally to route to the Hub.

　■ All mail servers will set outbound controls.

　■ The Hub server will set inbound and outbound controls.

## Classroom Internet implementation

In the classroom implementation, the Hub server is set up to route mail to the Internet. Every mail server sets SMTP outbound controls in the Configuration Settings document.
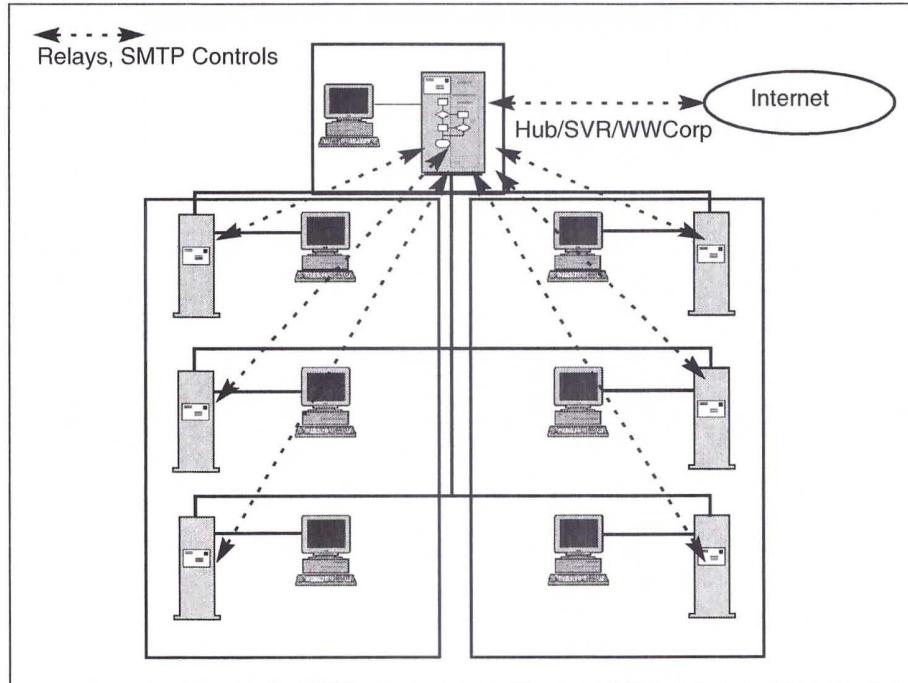
# Choosing the SMTP Configuration

There are two main SMTP scenarios and these can be combined. This section describes the scenarios and their advantages.

## All servers enabling SMTP

All servers can enable SMTP but relay mail through specific servers connected to the Internet. The advantages of this scenario are:

- Uses relay hosts to control SMTP traffic and exposes only the relay hosts to the outside world.
- Facilitates an infrastructure with other SMTP mail packages running in-house.
- Allows all servers to perform conversion to MIME, distributing the work of conversion.
- Allows use of DNS to configure failover and load balancing with MX records.

## Selected servers enabling SMTP

Selected servers can enable SMTP and other servers transfer Internet-bound mail to these servers using the standard Notes protocol, NRPC. This requires configuring **Foreign SMTP Domain Documents** and **SMTP Connection** documents to specify the route to the Internet or to specific Internet domains. It also requires SMTP servers to specify the **SMTP Mail Routing** task in the **Server** Document→**Routing tasks** field. Advantages of this scenario include:

- Accommodates Domino sites that set up Domino SMTP prior to Domino Release 5. This was the only option in releases prior to Release 5.
- Messages route internally via NRPC to reach the designated SMTP server, where conversion would then occur.
- Allows directing messages to specific SMTP servers based solely on the Foreign SMTP Domain Documents and SMTP Connection documents.

## Combining the scenarios

SMTP-enabled servers can also use Foreign SMTP Domain Documents and SMTP Connection documents to control domain-specific mail routing. For example, WWCorp might send many messages to two Internet domains and could configure a different relay host for each domain.

# Best Practice for SMTP

In a best practice SMTP implementation, two servers connect to the Internet and set SMTP controls — one inbound and one outbound — to limit the number of control documents.

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**Tip: Limit the number of SMTP control documents**

■ It is best to use one Configuration Settings document that includes a server group name instead of a document for each server.

■ Multiple Configuration Settings documents are more likely to conflict with one another and produce undefined results.

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## Best practice implementation

The following diagram shows one of the best practice implementations.
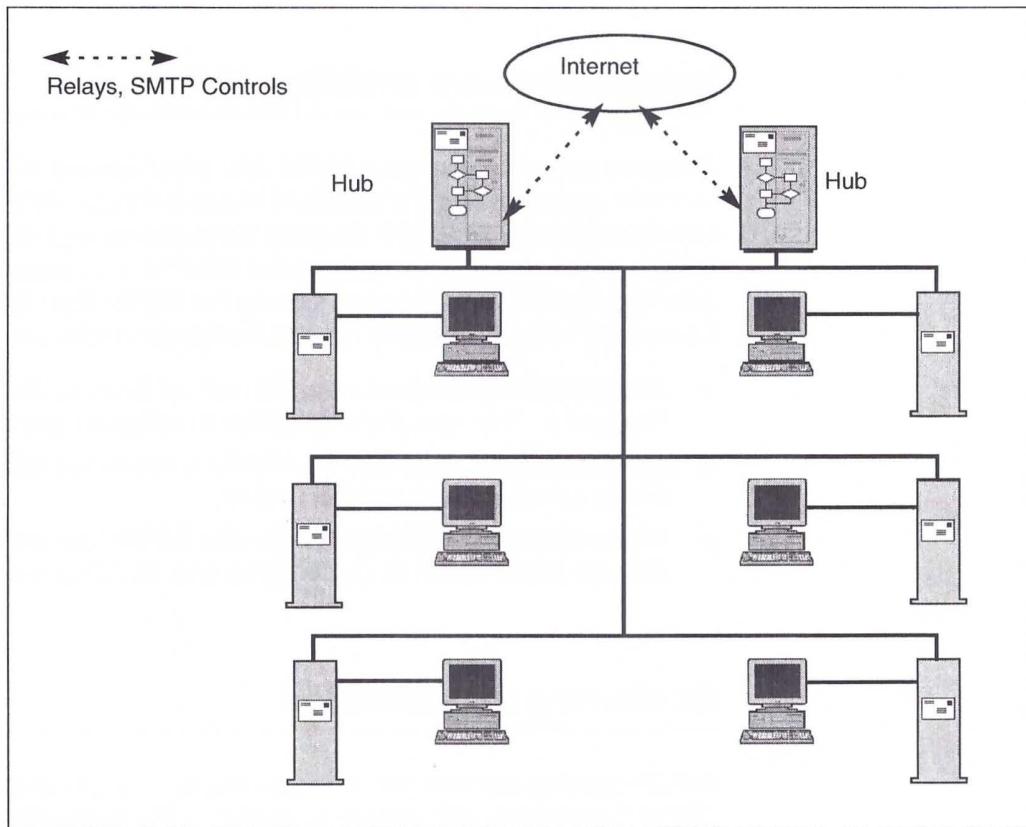
# Sample Internet Mail Routing Topology

Message transfer over SMTP routing is performed as a point-to-point exchange between two servers. The sending SMTP server contacts the receiving SMTP server directly and establishes a two-way transmission channel with it. To send a message over SMTP:

- The sending server checks the recipient's address, which is in the format *localpart@domain*, and looks up the domain in the Domain Name Service (DNS).

- DNS returns the Mail Exchanger (MX) record for the domain, indicating the IP address of the servers in the domain that accept mail over SMTP.

- The sending server connects to the destination server over TCP/IP, establishes an SMTP connection on port 25, transfers the message, and closes the connection.

## Sample scenario

The following diagram shows how mail would route from the mail servers to the Internet. It is good practice to limit the points of entry into the infrastructure for security and control. Additional inbound and/or outbound SMTP servers can be added to increase performance, if needed.
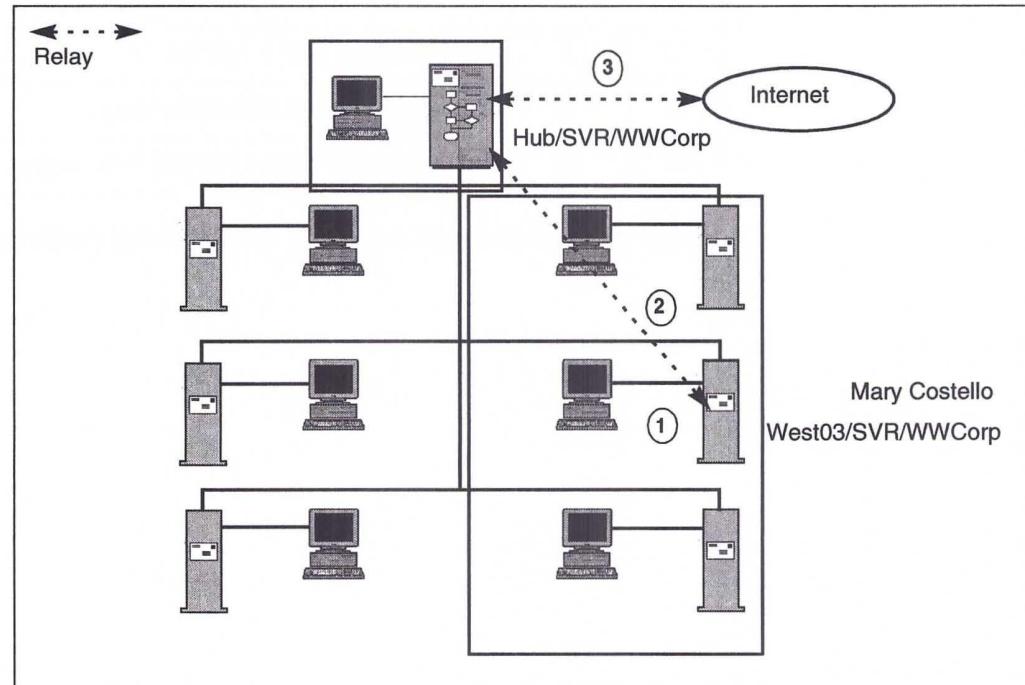
# How to Configure Mail Routing to the Internet

Sending and receiving mail over SMTP occurs by means of the SMTP listener task and SMTP Router, respectively, each of which are enabled separately.

- The SMTP listener task handles incoming SMTP connections and delivers messages received over those connections to Mail.box.
- The Router task for SMTP is the same Router task that handles Notes routing (NRPC). When a message in Mail.box requires transfer to another server, the Router determines where to send it and whether to send it over NRPC or SMTP.
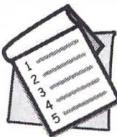
## Checklist: Configuring mail routing to the Internet

Complete these tasks to configure mail routing to the Internet.

|  | Task | Procedure |
|---|---|---|
| ❑ | 1 | Enable the SMTP listener task on appropriate servers. |
| ❑ | 2 | Configure basic SMTP options. |
| ❑ | 3 | Restrict mail flow to and from the Internet. |
| ❑ | 4 | Set advanced SMTP options. |
| ❑ | 5 | Configure Internet mail addressing. |
| ❑ | 6 | Test and troubleshoot Internet mail routing. |

**Note:** Task 6 is covered in *Lesson 11: Resolving Common Mail Problems.*

# Enabling the SMTP Listener

SMTP can be enabled on any server, during server setup. Once SMTP is enabled, Domino does not require or support a separate mail transfer agent (MTA) to send mail outside of the Domino Domain.

If SMTP routing is selected during server setup, Domino uses the default SMTP settings in the server Configuration Settings document. Administrators can change SMTP settings to tailor SMTP mail routing for their site.

## Enabling the SMTP listener task

Follow these steps to enable the SMTP listener task, if SMTP is not enabled during server setup.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the server to use SMTP mail routing. |
| 2 | Select the **Configuration** tab→**Server** section→**Current Server document**. |
| 3 | Click **Edit Server**. |
| 4 | On the **Basics** tab, complete the following fields:<br>■ **Fully qualified Internet host name:** Enter the server's complete combined host name and domain name, including the top-level domain.<br>  ■ The fully qualified host name is usually added to the Server document during server setup or by the Administration process (AdminP).<br>■ **SMTP listener task:** Select **Enabled**. |
| 5 | Click **Save & Close**. |

# Configuring Basic SMTP Settings

Configuration Settings documents, located in the Domino Directory, contain settings that control how tasks run on each server.

## Basic SMTP settings

The following table describes some of the basic SMTP settings.

| Field | Descriptions |
|---|---|
| SMTP used when sending Messages outside of the local Internet Domain | ■ Indicates if the Router can send SMTP messages to other SMTP hosts outside the local Internet domain.<br>■ Required for any server that uses a relay host, whether the relay host is a Domino server or not.<br>■ If disabled, the Router will use the NRPC protocol, connection, and domain documents to route the mail to a server that is SMTP outbound enabled. |
| SMTP allowed within the local internet domain | Indicates whether or not the Router can consider transferring mail to Domino servers in the local Domain via SMTP. |
| Servers within the local Notes Domain are reachable via SMTP over TCPIP | ■ If enabled, all servers in the local Notes domain with the SMTP listener task enabled can be reached via SMTP.<br>■ If disabled, only those servers in the same Domino Named Network are reachable via SMTP. The default is Always. |
| Relay Host for messages leaving the local internet domain | Indicates which relay host to send messages to, such as an ISP or firewall server, for any message sent outside the local Internet domain. |
| Host Name Lookup | ■ Where the Router should look to resolve an Internet host name.<br>■ The default is **Dynamic then local**, which uses DNS first, then the local hosts file. |

**Configuring Basic SMTP Settings...**(continued)

## Configure SMTP in the Configuration Settings document

Follow these steps to change the SMTP settings.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your server. |
| 2 | Select the **Configuration** tab→**Messaging** section→**Configurations** view. |
| 3 | Select the Configuration Settings document for your server, and click **Edit Configuration**. |
| 4 | Select the **Router/SMTP** tab. |
| 5 | On the Basics tab, complete the SMTP fields as follows:<br>■ **SMTP used when sending Messages outside of the local Internet Domain: Enabled**<br>■ **SMTP allowed within the local internet domain: Disabled**<br>■ **Servers within the local Notes domain are reachable via SMTP over TCPIP: Only if in same Notes Named Network**<br>■ **Relay Host for messages leaving the local internet domain:** Enter `hub.wwcorp.com`<br>■ **Host Name Lookup:**<br>  ■ If DNS: **Dynamic lookup only**<br>  ■ If Hosts file: **Local lookup only** |
| 6 | Click **Save & Close**. |

# Restricting Mail from or to the Internet

To specify how mail is sent to and from the Internet, set inbound and outbound SMTP controls.

**Tip:** Use one server for inbound and one for outbound to avoid bottlenecks, and for optimum performance.

## SMTP Inbound Controls

Inbound Controls specify from which external hosts the Domino mail server accepts messages. With Inbound Controls, it is possible to allow or deny:

■ Receiving messages from specific external Internet domains

■ Receiving unsolicited commercial messages in general or from sources listed in one or more DNS Blacklists (DNSBLs)

■ Receiving messages directed to specific Notes addresses

■ Relaying of messages from specific external Internet hosts to external Internet domains

## SMTP Outbound Controls

Outbound Controls specify who can send mail to the Internet from within an organization. With the Outbound Controls, it is possible to allow or deny sending messages:

■ To specific Internet addresses to be sent out to the Internet

■ From specific Notes addresses to the Internet

**Note:** SMTP Inbound and Outbound Controls apply only to routing mail externally via SMTP.

**Classroom Scenario**

Worldwide has determined the following restrictions for inbound and outbound mail:
■ Prevent mail from passing through external domains.
■ Enable Blacklist filters.
■ Prevent Sales personnel from sending messages to the Internet.

**Restricting Mail from or to the Internet...**(continued)

## Preventing mail from passing through the domain

Follow these steps to prevent the current domain from relaying messages from external domains.

| Step | Action |
|------|--------|
| 1 | Edit the Configuration Settings document for your server. |
| 2 | Select the **Router/SMTP** tab→**Restrictions and Controls** tab→**SMTP Inbound Controls** tab. |
| 3 | In the **Deny messages to be sent to the following external internet domains** field, enter an asterisk (*). |
| 4 | Click **Save & Close**. |

**Tip: Allow or deny specific IP addresses**

■ Use the restrictions and controls to allow or deny mail to or from specific IP addresses. To do this, specify a range of IP addresses to allow or deny as appropriate. Include the IP addresses block in brackets, for example: [198.114.90.*].

■ In the example, all IP addresses that begin with 198.114.90 are excluded, or allowed exclusively, to send mail through the SMTP server.

**Tip: Allow or deny specific host names**

■ To allow or deny a range of host names, enter the portion of the host name and insert the asterisk (*) where appropriate. For example, use *.xyz.com to block all hosts ending with .xyz.com.

■ Entering mail.com would also restrict hotmail.com. To restrict only the host name mail.com, enter *.mail.com or @mail.com.

**Restricting Mail from or to the Internet...**(continued)

## Enabling DNS Blacklist filters

Follow these steps to enable Blacklist filters for SMTP.

| Step | Action |
|------|--------|
| 1 | Edit the Configuration Settings document. |
| 2 | Select the **Router/SMTP** tab→**Restrictions and Controls** tab→**SMTP Inbound Controls** tab. |
| 3 | In the **DNS Blacklist Filters** section→**DNS Blacklist filters** field, select **Enabled**.<br>**Result:** Additional fields appear, allowing further control. |
| 4 | Click **Save & Close**. |

**Note:** Any host that is authorized to relay is exempt from Blacklist checks. For example, by default, Domino enforces the inbound relay restrictions only for external hosts (Perform Anti-Relay enforcement field for these connecting hosts). If the default setting is used, internal hosts are not subject to relay controls, and thus are also exempt from Blacklist checks. Administrators must use the exclusion list provided in the relay enforcement controls as a whitelist.

## Prevent Notes users from sending mail over SMTP

Follow these steps to prevent Sales users from sending messages to the Internet.

| Step | Action |
|------|--------|
| 1 | Edit the Configuration Settings document for your server. |
| 2 | Select the **Router/SMTP** tab→**Restrictions and Controls** tab→**SMTP Outbound Controls** tab. |
| 3 | In the **Deny messages from the following Notes addresses to be sent to the Internet** field, enter Sales. |
| 4 | Click **Save & Close**. |

# Choosing Advanced Configuration Options

Although it is not required, Domino supports E/SMTP (extended SMTP settings). These settings allow finer control over mail. For example:

■ To reduce connection charges, set the extended Turn (ETRN) extension to enable the calling server (for example, an ISP server) to request the called server to push mail to the ISP server. This configuration requires that the ISP pay for the connection charges.

■ To restrict messages of a specific size from being delivered, enable the Size extension field. The send will immediately fail if the message size is greater than the maximum size allowed on that server before the message is transmitted. Set the maximum message size on the Restrictions tab.

## Configuring E/SMTP options

Follow these steps to set controls to reduce connection charges and set message size restriction.

| Step | Action |
|------|--------|
| 1 | Edit your server Configuration Settings document. |
| 2 | Select the **Router/SMTP** tab→**Advanced** tab→**Commands and Extensions** tab. |
| 3 | Complete the fields as follows:<br>■ **ETRN Command:** Select **Enabled**.<br>■ **Size extension:** Select **Enabled**. |
| 4 | Click **Save & Close**. |

**Tip:** ETRN requests the ISP to send messages to the Domino server after the server finishes sending messages. If the SMTP server makes dial-up connections, maximize the connection by enabling ETRN. Specify either Pull Only or Pull Push routing in the Connection document for the ISP server.

# Configuring Internet Addressing

To enable Notes users to send and receive mail to and from Internet users, set users' Internet address during user registration. An administrator can also set or change the Internet address of existing users.

## Set the Internet Address field of existing users

Follow these steps to set the Internet Address field for an existing user.

| Step | Action |
|------|--------|
| 1 | Select your server to administer. |
| 2 | Select the **People & Groups** tab→**Domino Directories** section→**WWCorp's Directory** section→**People** view. |
| 3 | Select your Person document in the view. |
| 4 | From the **Tools** pane, choose **People**→**Set Internet Address**. |
| 5 | In the **Set Internet Address** dialog box, make the following changes:<br>■ Select **Use existing address from shortname field, if available**.<br>■ Select **FI LastName** format.<br>■ Select **Underscore** for **Separator**.<br>■ Enter the **Internet domain:** wwcorp.com |
| 6 | (Optional) Select **More options** to define the address further. |
| 7 | Click **OK**. |

If no users are selected in the view, every Person document will change to reflect the new Internet address format.

**Caution**

**Configuring Internet Addressing...**(continued)

## Specify how to look up Internet addresses

The Address Lookup field on the **Router/SMTP** tab→**Basics** tab determines what part of the address to consider when looking up the recipient of an inbound SMTP message. Follow these steps to specify how to look up Internet addresses.

| Step | Action |
|------|--------|
| 1 | Edit the Configuration Settings document. |
| 2 | Select the **Router/SMTP** tab→**Basics** tab. |
| 3 | In the Address Lookup field, select **Fullname then Local part**.<br>**Note:** This setting allows Domino to look up users, groups, and mail-in databases for mail received via SMTP. |
| 4 | Click **Save & Close**. |

**Note:** The Address Lookup field applies to routing SMTP mail within the local domain as well as inbound mail from outside the domain.

# Testing SMTP

Worldwide's implementation of SMTP relays all SMTP outbound mail through the hub server. The Router first searches Person documents for the Internet address. If no match is found, the Router sends the message to the Internet.

## Send mail to Internet addresses

Follow these steps to send two messages using SMTP.

| Step | Action |
|------|--------|
| 1 | From the Notes client:<br>■ Create a mail message addressed to a WWCorp user. For example: GBernard@WWCorp.com.<br>■ Create a mail message addressed to a non-existent user. For example: xyz@.jkjkjkjkjk.com.<br>**Note:** Do not send the messages yet. |
| 2 | From the Domino Administrator, select the **Server** tab→**Status** tab. |
| 3 | In the Navigator pane, select the **Server Console** view. |
| 4 | Click **Live**. |
| 5 | Return to the Notes client and send both messages.<br>**Result:** Messages are sent using SMTP to the Hub server.<br>**Note:** In a real-world scenario, the message would then be relayed to the Internet (the server listed as the relay host on the Hub's Configuration Settings document). |
| 6 | Return to the Server Console to see how messages were sent. |

# Deployment Tasks Implemented

In this lesson, we completed the following steps from the Internet Mail Routing checklist:

- Enable the SMTP listener task on appropriate servers.
- Configure basic SMTP options.
- Restrict mail flow to or from the Internet.
- Set advanced SMTP options.
- Configure Internet mail addressing.

## Checklist: Building the Domino environment

The bolded task from the Implementation Checklist was completed in Lesson 8.

| | Task | Procedure |
|---|---|---|
| ❏ | 1 | Set up the first server. |
| ❏ | 2 | Add an administrator's workstation. |
| ❏ | 3 | Set up access to the Domino Directory. |
| ❏ | 4 | Add Domino servers. |
| ❏ | 5 | Add Organizational Units. |
| ❏ | 6 | Register administrators. |
| ❏ | 7 | Add Notes clients. |
| ❏ | 8 | Create user groups. |
| ❏ | 9 | Create organizational policy. |
| ❏ | 10 | Register users. |
| ❏ | 11 | Set administration preferences. |
| ❏ | 12 | Set up access to servers. |
| ❏ | 13 | Set up server logging. |
| ❏ | 14 | Synchronize Domino system databases throughout the domain. |
| ❏ | 15 | Route mail internally. |
| ❏ | **16** | **Route mail to the Internet.** |
| ❏ | 17 | Set mail controls. |
| ❏ | 18 | Test mail routing and delivery. |

# Establishing Mail Controls

When setting up a mail infrastructure, it is important to set limitations on how and when mail routes to ensure control over the environment. This lesson covers the types of controls that can be set and provides practice on setting some specific controls.

## Objectives

Upon completion of this lesson, you should be able to:

✓ Restrict mail flow.
✓ Set delivery controls.
✓ Set mail transfer controls.
✓ Create mail rules.
✓ Establish mail quotas.
✓ Set up server for mail journaling.
✓ Establish an archive policy.

# Restricting Mail Flow

The server Configuration Settings documents contain default settings for routing mail internally in the domain. Administrators can change the default settings to tailor mail routing for their site.

## Restrictions and controls

The **Restrictions and Controls** tab contains fields that control mail flow to and from other Domino and Internet domains. The following table describes some of the Restrictions and Control fields.

| To Control This Type of Mail Flow | Use This Field | Additional Notes |
|---|---|---|
| Allow only the specified domains to send mail to this domain. | Allow mail only from domains | Blank field allows all domains except those explicitly listed in the Deny mail from domains field. |
| Restrict specific domains from sending mail to this domain. | Deny mail from domains | Blank field indicates there are no domains restricted. |
| Restrict only specific organization hierarchy to send mail to this domain. | Allow mail only from the following organizations and organizational units | Use wildcards, for example, */Earth, or */US/Earth. |
| Deny messages larger than a specific size. | Maximum message size | A non-delivery report is sent to the sender if the message is larger than the specified size. |
| To route large messages as low priority, therefore, defer transferring until a different time of day. | Send all messages as low priority if message size is between | The maximum end of the range is the value in the Maximum message size field. |

**Note:** The Router restrictions fields also apply to mail routed to the Internet.

## Restricting Mail Flow...(continued)

### Configure Router restrictions

Large mail messages should be sent during off-peak hours.

Follow these steps to edit the server Configuration Settings document to set the maximum message size restrictions.

| Step | Action |
|------|--------|
| 1 | Edit the Configuration Settings document. |
| 2 | Select the **Router/SMTP** tab→**Restrictions and Controls** tab→ **Restrictions** tab. |
| 3 | In the **Router restrictions** section, complete the fields as follows:<br>■ **Maximum message size:** 10,000KB<br>■ **Send all messages as low priority if message size is between:**<br>　■ Select **Enabled**<br>　■ Enter 5,000 |
| 4 | Click **Save**.<br>**Result:** The Configuration Settings document remains open. |
| 5 | To have settings take effect immediately, enter tell Router Update Configuration at the server console.<br>**Note:** Otherwise, the updates take place every 5 minutes. |

**Tip:** To manage costs and connection times, send all large messages, such as those between 2 to 10 MB, low priority, instead of restricting them entirely.

■ If the size is too low, it may prevent messages from ever being sent.
■ Make sure a Connection document exists that specifies mail routing during off-peak hours.

**Caution**

# Controlling Mail Delivery

Delivery controls allow customization of message delivery, including how many threads are used to deliver messages, whether the messages must be encrypted, how long the server waits for a pre-delivery agent to run, and whether the Router supports the forwarding action in Notes client mail rules.

## Delivery controls

The **Delivery Controls** tab contains fields that control mail delivery. The following table describes some of the Delivery Control fields.

| To Control This Type of Mail Delivery | Use This Field | Additional Notes |
|---|---|---|
| Maximum number of server threads Domino can create to deliver mail from Mail.box to local mail files | Maximum delivery threads<br>Enter a maximum between 1 and 25, based on the server load. | The Router automatically sets the default maximum number of delivery threads based on server memory. Letting the Router select the maximum number is recommended. |
| Whether Domino encrypts messages:<br>■ Regardless of whether the sender or the recipient's mail file encrypts messages (Enabled), or<br>■ Only if the recipient's mail file is set to encrypt received messages (Disabled) | Encrypt all delivered mail<br>■ Enable<br>■ Disable (default) | When encryption is enabled and an external user requests a return receipt for a message sent to a user whose mail file is on the server, the return receipt message that Domino generates contains a blank message body. |
| Whether or not the server permits the use of pre-delivery agents | Pre-delivery agents<br>■ Enable (default)<br>■ Disable | If the Router detects a pre-delivery agent created by a user, it runs the agent against the message before the message appears in the recipient's inbox. |
| Maximum time (in seconds) that a pre-delivery agent, such as a mail filter, can run before the Router interrupts it | Pre-delivery agent timeout<br>Default is 30 seconds. | Failure to restrict agents can slow routing performance on the server. |
| Whether the Router supports the rule action to send copies of selected messages automatically to other recipients | User rules mail forwarding<br>■ Enable<br>■ Disable | Notes users can create mail file rules that automatically process new mail. |

**Controlling Mail Delivery...**(continued)

## Disable pre-delivery agents

Restricting agents can improve server performance.

Follow these steps to edit the Configuration Settings document to disable pre-delivery agents.

| Step | Action |
|------|--------|
| 1 | Edit the Configuration Settings document. |
| 2 | Select the **Router/SMTP** tab→**Restrictions and Controls** tab→**Delivery Controls** tab. |
| 3 | For the **Pre-delivery agents** field, select **Disabled** and click **OK**. |
| 4 | Click **Save**. |
| 5 | To have settings take effect immediately:<br>Enter `Tell Router Update Configuration` at the server console.<br>**Note:** Otherwise, the updates take place every five minutes. |

# Enhancing Transfer Performance

Transfer control fields determine how and when mail is transferred to other servers.

## Mail transfer controls

The following table describes some of the transfer controls fields.

| To Manage This Type of Mail Transfer | Set This Field | Default |
|---|---|---|
| When low priority mail should be transferred | Low priority mail routing time range | 12:00 AM - 06:00 AM |
| How often the Router should retry transferring mail | Initial transfer retry interval | 15 minutes |
| How often expired messages should be purged from the server's Mail.box | Expired message purge interval | 15 minutes |

**Note:** The transfer control fields also apply to mail routed to the Internet.

## Specify when low priority mail should route

The *Configure Router restrictions* guided practice specified that messages between 2-10 MB in size should route low priority. Follow these steps to specify when low priority mail routes.

| Step | Action |
|---|---|
| 1 | Edit the Configuration Settings document. |
| 2 | Select the **Router/SMTP** tab→**Restrictions and Controls** tab→**Transfer Controls** tab. |
| 3 | Set the **Low priority mail routing time range** to 2:00 AM – 5:00 AM. <br> **Note:** Worldwide Corporation wants a shorter time range than the default because of international time zones. |
| 4 | Click **Save & Close**. |

Make sure there is a Connection document that includes the low priority time range; otherwise, low priority mail will not route.

**Caution**

# Configuring Multiple Server Mailboxes

By default, the Router uses only one Mail.box. The Router supports using multiple mailboxes on a server. Using multiple mailboxes:

- Reduces contention
- Increases reliability
- Increases delivery speed

**Note:** On busy mail servers, add one or two mailboxes and increase the number until mail routing patterns are optimal.

## Set up multiple mailboxes

Follow these steps to set up multiple mailboxes on each mail server.

| Step | Action |
|------|--------|
| 1 | Select the **Messaging** tab→**Mail** tab→*Servername* **Mailbox (mail.box)** view. |
| 2 | Select the **Configuration** tab→**Server** section→**Configurations** view. |
| 3 | Edit the Configuration Settings document for your server. |
| 4 | Select the **Router/SMTP** tab→**Basics** tab. |
| 5 | In the **Number of mailboxes** field, enter 2. |
| 6 | Click **Save**. |
| 7 | Restart the server for the changes to take effect. |
| 8 | Switch back to the Administration window, and select the **Messaging** tab→**Mail** tab→**Routing Mailboxes** section to view the two new mailboxes. |

**Note:** After the server creates multiple mailboxes, the Router no longer uses the initial Mail.box. Therefore, after creating multiple mailboxes, ensure that the Router processes messages by copying messages from the original Mail.box to one of the new mailboxes.

# What Is Mail Journaling?

**Mail journaling** enables capturing of a copy of all or specified messages that the Router processes by the Domino system. The benefits of using journaling include:

- Compliance with laws or regulations that require an organization to save a copy of every message processed by the local mail system and permanently store or otherwise process the message copies.
- Long-term storage needs if used in conjunction with third-party archiving programs.

## Journaling and mail rules

Mail journaling works in conjunction with mail rules. The journaling rule determines which messages to journal. For example, you can journal messages sent to or from specific people, groups, or domains.

Once configured, journaling is done automatically by the server. A copy of the message is retained, even if the recipient, or an agent acting on the recipient's mail file, deletes it immediately upon delivery.

**Tip:** On servers running the ISpy task, the Mail Journaling database captures each trace message that the ISpy task sends. To prevent the Mail Journaling database from accumulating these entries, configure a rule exception for messages where the sender includes ISpy.

**What Is Mail Journaling?**...*(continued)*

## How mail journaling works

Journaling does not disrupt the normal routing of a message. When mail journaling is enabled, Domino:

■ Examines messages as they pass through Mail.box.

■ Sets a journal flag on the message before transferring it to the next server on the route so it is only journaled once.

■ Saves copies of selected messages to a Domino Mail Journaling database (Mailjrn.nsf)

■ After the Router copies a message to the Mail Journaling database, it sends the message to the intended recipient.

■ Before depositing messages in the Mail Journaling database, the Router encrypts them to ensure that only authorized persons can examine them.

■ Delivers the message from the destination server after removing the journal flag so the user is not aware that the message was journaled.

**Note:** When using a mail-in database, the mail-in database is just added as a recipient to the original message. Messages are not re-encrypted.

## Server configuration affects journaling

Journaling is also affected by the server configuration. There is a possibility of a message being journaled more than once from a user's perspective due to server configuration or message modifications.

For example, if Servers B and C have journaling enabled, but Server A does not, and a user on Server A sends a message to one user on Server B and another user on Server C, the message will be journaled on both Servers B and C. If journaling is enabled on Server A, then only Server A would journal the message.

# Enabling Mail Journaling

By default, mail journaling is not enabled. Domino automatically creates the Mail Journaling database in the specified location when mail journaling is enabled.

## Enabling mail journaling

Follow these steps to set up the Mail Journaling database by specifying where to store journaled messages and setting options for managing the security and size of the database.

| Step | Action |
|------|--------|
| 1 | Select the **Configuration** tab→**Messaging** view→**Configurations** view. |
| 2 | Select the server and click **Edit Configuration**. |
| 3 | Select the **Router/SMTP** tab→**Advanced** tab→**Journaling** tab. |
| 4 | In the **Basics** section, complete the following fields:<br>■ **Journaling:** Enabled, Disabled (default).<br>■ **Field encryption exclusion list:** Fields that are not encrypted and will display in the view. Default encrypted fields are Form, From, Principal, and PostedDate.<br>**Method:**<br>■ **Copy to local database (default):** If the Configuration Settings document applies to multiple servers, Domino creates a unique Mail journaling database on each server.<br>■ **Send to mail-in database:** The database must already exist. Messages are not encrypted. When using a mail-in database, encrypt messages when adding them to the database.<br>■ **Database name:** Default (Mailjrn.nsf, applies to local copy only).<br>■ **Mail destination:** Name of the mail-in database.<br>■ **Encrypt on behalf of user:** Fully-qualified Notes Name of the user whose certified public key Domino uses to encrypt messages added to the database. |

**Enabling Mail Journaling...**(continued)

## Enabling mail journaling...

| Step | Action |
|------|--------|
| 5 | In the **Database Management** section, complete the following fields:<br>**Method:**<br>■ **Periodic Rollover:** Create new database at 12 AM every x days (specify the days in the periodicity field).<br>■ **None:** No method of data retention used.<br>■ **Purge/Compact:** Delete documents after specified number of days and compact database (specify days in the data retention field).<br>■ **Size Rollover:** Create new database when maximum size is reached (specify size in the maximum size field). |
| 6 | Click **Save**. |
| 7 | To have settings take effect immediately:<br>Enter `Tell Router Update Configuration` at the server console.<br>**Note:** Otherwise, the updates take place every five minutes. |

# What Are Mail Rules?

Mail Rules define actions to be taken on certain messages. When a new message that meets the condition specified in the rule is deposited in Mail.box, Domino automatically performs the designated action.

## Mail rule actions

Mail rules define the following actions:

- Journal a message.
- Move a message to a database for storage or quarantine.
- Refuse to accept or deliver a message.
- Change the routing state of a message.
- Administrator review of messages redirected to quarantine database.

## When actions are performed

The server searches each message for conditions specified in the server mail rules and performs an action on the message. Some types of actions occur immediately. Other types of actions are performed by the Router later, so the server tags these messages before depositing them in Mail.box.

**Server Actions**

- Don't accept message.
- Change routing state.

**Router Actions**

- Journal this message.
- Move to database.
- Do not deliver message.

### What Are Mail Rules?...*(continued)*

## How mail rules work

The following table describes how rules are processed.

| When | Then |
|---|---|
| Domino server starts | Each server retrieves rules from the appropriate Configuration Settings document and registers them as monitors on each Mail.box database in use. |
| Mail.box receives a new message from any source — the SMTP process, the Router on another server, or a client depositing a message | The server evaluates the message fields against the registered mail rules. **Notes:** <br>■ Each message is evaluated only once. <br>■ Additional updates occurring after a message is added to Mail.box — such as updates to reflect the number of recipients handled — do not cause reevaluation of the rules. |
| A new rule is added | The rule takes effect after the server reloads the mail rules. A reload is automatically triggered if the Server task detects a rule change when performing its routine check of the Configuration Settings document. This check occurs approximately every five minutes. **Note:** <br>■ You can force the server to reload rules, using the `set rules` command at the server console. |
| Mail.box receives an encrypted message (Notes encrypted, S/MIME, PGP, and so forth) | The server mail rules process any rule conditions that are based on unencrypted information in the message envelope, such as the sender, importance, and recipients, but do not process conditions based on the encrypted portion of the message body. |
| A rule prevents a message from reaching its destination | For example, if an inbound SMTP message is refused, the sending server would typically generate a delivery failure report to the sending user. Similarly, a Notes user receives an error if a mail rule prevents the Domino server from accepting a message. |

# Creating a Mail Rule

Worldwide needs mail rules to reject messages with subjects containing certain words, unless such messages are from specific senders.

## Create a mail rule

Follow these steps to create a mail rule that prevents sending messages with a specific subject except when the message is from a specific sender.

| Step | Action |
|------|--------|
| 1 | Select the **Configuration** tab→**Messaging** view→**Configurations** view. |
| 2 | Select the Configuration Settings document and click **Edit Configuration**. |
| 3 | Click the **Router/SMTP** tab→**Restrictions and Controls** tab→**Rules** tab→**New Rule**. |
| 4 | For **Specify Conditions**, perform the following:<br>■ Select **Subject**.<br>■ Select **Contains**.<br>■ Enter a subject.<br>■ Click **Add**. |
| 5 | For **Specify Conditions**, perform the following:<br>■ Select **Exception**.<br>■ Select **Sender**.<br>■ Select **Is**.<br>■ Enter a sender.<br>■ Click **Add**. |
| 6 | For **Specify Actions**, perform the following:<br>■ Select **don't accept message**.<br>■ Click **Add Action**. |
| 7 | Click **OK** to save the rule. |
| 8 | Click **Save**.<br>**Note:** The Configuration Settings document must be saved to make the rule available for activation. |

# Activating a Rule

The Router task reloads the list of rules every five minutes. To activate a new rule immediately, issue the set rules command at the server console.

## Activate the rule

Follow these steps to make the rule action take effect immediately.

| Step | Action |
|------|--------|
| 1 | Select the **Server** tab→**Status** tab. |
| 2 | In the Navigator pane, select the **Server Console** view. |
| 3 | Click **Live**. |
| 4 | In the **Domino Command** field of the console, enter the command `set rules` and click **Send**. |

## Prioritizing mail rules

After enabling mail rules, set their relative priority by moving them up and down the list. For example, keeping rules that affect security at the top of the list ensures greater protection.

Since, in most cases, only one action is taken per message, prioritization can be used to customize rules. Prioritizing allows one rule to take precedence over another.

For example, one rule may reject all messages with the subject "Buy," to avoid spam messages in general. But another rule can accept all messages from a specific domain, such as a specific customer, even if they include the word "Buy."

# What Are Quotas?

Quotas are size limits that are set on users' mail files. There are two types of quotas:

- Absolute quota size
- Warning threshold

Quotas restrict mail-file size by allowing interruption of mail flow. Warning thresholds provide users with advance notice when their mail files approach the designated mail file quota, so they can reduce the size of their mail files before message flow is interrupted. Quotas must be set before warning thresholds are specified.

Quotas and warning thresholds are associated with a particular mail file database only, not with a user ID.

## Setting quotas and thresholds

Set quota limits and warning thresholds:

- During registration – Quotas specified during registration apply only to new users, not to existing users.
- Per database – Administrators can manually specify the warning threshold and quota of one or more mail files.

## Quota restrictions

Quota restrictions allow:

- For several types of restriction settings including non-delivery of mail. (Hold messages in Mail.box or return to sender.)
- Administrators to define actions to take on mail files whose quotas are reached or exceeded.
- Reduction in server's disk space and increase in performance of the mail client.

# Establishing Mail Quotas

Worldwide has asked administrators to restrict the size of their own mail files.

## Set mail quota

Follow these steps to create a quota of 10 MB and a threshold of 9 MB on a user's mail file.

| Step | Action |
|------|--------|
| 1 | From the **Files** tab, select your user's mail database. |
| 2 | Select the **Tools** pane→**Database**→**Quotas**. <br> **Result:** The Set Quotas dialog box appears. |
| 3 | Click **Set database quota to** and enter 10. |
| 4 | Click **Set warning threshold to** and enter 9. |
| 5 | Click **OK**. |

# Setting Mail Quota Restrictions

Worldwide now needs to define what happens when mail files with quotas approach and reach the quota.

## Setting a quota restriction

Follow these steps to specify handling of quota restrictions on mail files.

| Step | Action |
|------|--------|
| 1 | Select the **Configuration** tab→**Messaging** view→**Configurations** view. |
| 2 | Select the Configuration Settings document for the mail server and click **Edit Configuration**. |
| 3 | Select the **Router/SMTP** tab→**Restrictions and Controls** tab→**Delivery Controls** tab. |
| 4 | For **Over warning threshold notifications**, select one of the following:<br>■ **None**<br>■ **Per time interval** to send one message during the time interval specified<br>　■ Select **warning interval** and select **Hour(s)**, **Minute(s)**, or **Day(s)**. Enter number.<br>■ **Per message** to send a message to the user when the threshold is reached |
| 5 | For **Over quota notification**, select one of the following:<br>■ **None**<br>■ **Per message** to send a message to the user when the quota is exceeded<br>■ **Per time interval** to one message during the time interval specified<br>　■ Select **warning interval** and select **Hour(s), Minute(s)**, or **Day(s)**. Enter number. |
| 6 | For **Over quota enforcement** select one of the following:<br>■ **Deliver anyway (don't obey quotas)** – Router delivers new mail even if quota is exceeded.<br>■ **Non deliver to originator** – Router does not deliver mail and sends notification to intended recipient (and sender, since Over quota notification field was set to Per Message).<br>■ **Hold mail and retry** – mail is held in Mail.box and Router resends until mail file is below quota. |
| 7 | Click **Save**. |
| 8 | To have settings take effect immediately:<br>Enter `Tell Router Update Configuration` at the server console.<br>**Note:** Otherwise, the updates take place every five minutes. |

# Setting Mail Controls Exercise

**Exercise Scenario**

Worldwide Corporation has set the following standards for their mail infrastructure:

- All mail files must not exceed 15 MB.
- Users must be notified when their mail files are about to exceed 14 MB.
- Messages will not be delivered when mail files are larger than 14 MB.
- All messages containing an attachment with the extension .abc are refused.
- All messages from Doctor Notes must be saved in a local database that is backed up and recreated once per day.
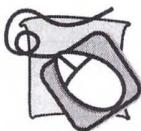
## Use mail controls to establish standards

Complete the following tasks:

- Create mail quota and threshold to ensure mail databases do not exceed 15 MB.
- Create a quota restriction to deny delivery of messages when quota is exceeded.
- Create a mail rule to deny messages containing attachments with the extension .abc.
- Enable mail journaling.
- Create a mail rule to journal all messages from Doctor Notes. (**Hint:** Mail journaling must be enabled.)
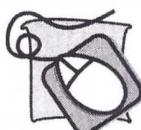
## Test mail controls

Complete the following tasks:

- Create a message with the Help database (/data/help/Help6_client.nsf) attached and send it to your partner to test the mail quota.
  - Did your partner receive the message?
  - Did you receive a warning?
- Create a message with the Test.abc file attached to it and send it to your partner to test the mail rule.
  - Did your partner receive the message?
- Locate the message from Doctor Notes in the mail journaling database.

# Archiving Mail Using Policies

The Archive Policy Settings document allows standardization of document archiving. Archive settings are centrally managed and enforced by the administrator. Use the Settings document to specify:

- Whether to allow archiving
- Archive location
- Archive selection criteria
- Archive log information

Server-to-server archiving can archive all mail files to central server.

## Archiving solutions

Archiving policies can solve the following problems.

| Problem | Solution |
|---------|----------|
| ■ Space is tight on the mail server.<br>■ Need a centralized archive server. | Server-based archiving is enabled from a mail server to a designated archive server. |
| Archiving cannot occur during peak work hours. | Archiving is scheduled to occur during off hours. |
| End users must not be allowed to control their archive settings. | Users are prohibited from changing or creating archive settings. |
| Lotus Notes 6 clients will not be rolled out immediately. | The designated archive server is a Domino 6 server, so that policies can be enforced in a mixed environment. |

## Archiving Mail Using Policies...*(continued)*
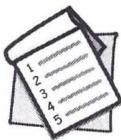
### Archiving user mail

Users can follow these steps to archive their mail.

| Step | Action |
|------|--------|
| 1 | Open the mail file. |
| 2 | Choose **Actions→Archive→Settings**.<br>**Result:** The Archive Settings dialog box appears. |
| 3 | Click **Settings** and click **Enable Archiving**. |
| 4 | Click **Advanced** and click **Scheduled archiving will occur locally**. |
| 5 | Click **OK**. |

### Setting up archiving

To enable mail file archiving, use the following documents:

- The Policy document
- The Archive Settings document
- The Archive Criteria Settings document

The following describes the Archive Settings and Archive Criteria Settings documents:

- An **Archive Settings** document specifies whether or not to allow archiving, whether or not to allow Notes users to set their own private archiving criteria where archiving occurs, and the destination location for the Archive Log database.
- The **Archive Criteria Settings** document establishes the criteria for document selection and mail file cleanup. Each Archive Settings documents requires:
  - At least one Archive Criteria Settings document if enabling archiving.
  - No Archive Criteria Settings document if prohibiting archiving.

# Creating an Archive Policy

**Classroom Scenario**

Worldwide Corporation wants to allow specific user groups to archive their own mail to save space. However, they have ordered a server to use specifically for archiving and it has not arrived yet. The administrators have been asked to prohibit archiving for all users until the new server is up and running.

## Add policy settings to prohibit archiving

Follow these steps to add policy settings that prohibit archiving. Add the settings to the existing explicit Policy document you created in *Lesson 4: Adding Notes Clients*.

| Step | Action | Result |
|------|--------|--------|
| 1 | Use the following steps to open the explicit policy:<br><br>a. Click **Configuration** tab→**Policies** view→**by Hierarchy**.<br>b. Select the explicit policy you created.<br>c. On the Tools pane, choose **Policy→Edit**. | |
| 2 | Locate the **Archiving** section and click **New**. | The Archiving Settings document is created. |
| 3 | On the **Basics** tab, perform the following:<br><br>■ For **Name**, enter `Archiving Prohibition for Admin number` (where *Admin number* is your Admin user number, for example West01).<br>■ In the **Archiving Options** section, select **Prohibit archiving**. | Remaining sections and some tabs disappear. |
| 4 | Click **Save & Close** to save the Archive Settings document. | Returns to the Policy document. |
| 5 | Press CTRL+S to save the Policy, then click the drop-down arrow next to Archiving and select the name of the new Archive Settings document. | |
| 6 | Click **Save & Close**. | |

# Testing Archive Policy Exercise

The simplest way to test an explicit policy is to assign the policy to yourself.
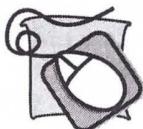
## Assign and test the archive policy

Complete the following tasks:

- Assign the explicit policy to yourself.
- Open your mail file and try to archive your mail.

# Deployment Tasks Implemented

In this lesson, we have completed the following steps in the Intranet mail routing checklist:

- Set mail flow restrictions
- Set mail transfer controls.
- Set mail rules.
- Configure additional server mailboxes.

## Checklist: Building the Domino environment

The bolded task from the Implementation Checklist was completed in Lesson 9.

| | Task | Procedure |
|---|---|---|
| ❑ | 1 | Set up the first server. |
| ❑ | 2 | Add an administrator's workstation. |
| ❑ | 3 | Set up access to the Domino Directory. |
| ❑ | 4 | Add Domino servers. |
| ❑ | 5 | Add Organizational Units. |
| ❑ | 6 | Register administrators. |
| ❑ | 7 | Add Notes clients. |
| ❑ | 8 | Create user groups. |
| ❑ | 9 | Create organizational policy. |
| ❑ | 10 | Register users. |
| ❑ | 11 | Set administration preferences. |
| ❑ | 12 | Set up access to servers. |
| ❑ | 13 | Set up server logging. |
| ❑ | 14 | Synchronize Domino system databases throughout the domain. |
| ❑ | 15 | Route mail internally. |
| ❑ | 16 | Route mail to the Internet. |
| ❑ | 17 | **Set mail controls.** |
| ❑ | 18 | Test mail routing and delivery. |

# Troubleshooting the Messaging Infrastructure

**Lesson 10  Monitoring Mail**

**Lesson 11  Resolving Common Mail Problems**
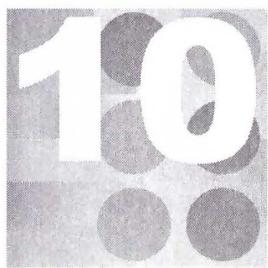
# Monitoring Mail

Once the mail infrastructure is in place, it is important to monitor mail to make sure it is routing correctly. This lesson introduces monitoring tools and methods to ensure that messages are delivered.

## Objectives

Upon completion of this lesson, you should be able to:

✓ Monitor mail delivery.
✓ Monitor mail statistics.
✓ Track mail messages.

# Testing Mail Routing

After implementing mail routing, test the connections to ensure messages route properly.

## Checklist: Troubleshooting mail

If problems occur during routing, check the details in the following table.

| | Task | Procedure |
|---|---|---|
| ❑ | 1 | The network connections are set up correctly. |
| ❑ | 2 | The servers and Router are up and running. |
| ❑ | 3 | The DNNs are set up properly. |
| ❑ | 4 | The appropriate Connection documents exist and contain the following:<br>■ The server name is correct.<br>■ The schedule is enabled.<br>■ The Router type is correct. |
| ❑ | 5 | The connection requirements for sending mail, such as calling times or message thresholds, have been met. |
| ❑ | 6 | Replication between servers is successful, ensuring Connection document information is up-to-date on all relevant servers. |
| ❑ | 7 | Router restrictions do not prohibit message delivery. |
| ❑ | 8 | SMTP settings are correct. |
| ❑ | 9 | Inbound and outbound controls are properly set. |
| ❑ | 10 | Quotas are not exceeded. |
| ❑ | 11 | Mail rules do not prohibit message delivery. |
| ❑ | 12 | The mail address is correct. |
| ❑ | 13 | The person information is correct. |

## Common mail routing and delivery problems

Mail routing problems most often occur for one of the following reasons:

■ A mail server is down.
■ The Router is not running.
■ Mail routing connections are improperly or poorly configured.

**Testing Mail Routing...** *(continued)*
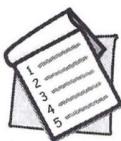
## Checklist: Monitoring mail

Complete these tasks to ensure that mail is routing properly.

|  | Task | Procedure |
|---|---|---|
| ❏ | 1 | Check for dead and undelivered mail. |
| ❏ | 2 | Check mail monitoring tools. |
| ❏ | 3 | Set up mail statistic monitors. |
| ❏ | 4 | Enable message tracking. |

# Monitoring Mail Delivery

Often, misdelivered mail falls into one of the categories described in the following table.

| Category | Definition |
|---|---|
| Dead mail | Mail that is not delivered to the recipient and cannot be returned to the sender for non-delivery.<br><br>For example, if the sender mails a message to the wrong address, and the sender's mail file is deleted or moved, Domino can neither deliver the mail nor return the mail to the sender. |
| Undelivered mail | Mail that is not delivered because either:<br>■ The Router on the server is not running.<br>■ The recipient's mail server is down. |

## Checking mail delivery

The Domino Administrator Messaging tab contains monitors and tools for verifying mail routing and server connections, and monitoring mail delivery status.

Follow these steps to monitor and troubleshoot mail routing problems.

| Step | Action |
|---|---|
| 1 | From Domino Administrator, select the mail server. |
| 2 | Select the **Messaging** tab→**Mail** tab. |
| 3 | Select each of the following views:<br>■ *Servername* **Mailbox** view<br>■ **Mail Routing Status** view<br>■ **Mail Routing Events** view |
| 4 | Double-click a document in the **Mail Routing Events** view to display the details of mail routing events. |
| 5 | Select the **Messaging** tab→**Mail** tab→**Mail Routing Topology** tab. |
| 6 | Select each of the following views:<br>■ **By Connections** view.<br>■ **By Named Networks** view. |

# Monitoring Mail Statistics

Mail statistics provide additional information on mail flow and current mail configuration performance. Enable and monitor statistics using the Server Monitor.

## Enable mail statistics

Follow these steps to enable and monitor additional mail routing statistics.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your server. |
| 2 | Select the **Server** tab→**Monitoring** tab. |
| 3 | Click **Start**. |
| 4 | From the menu, choose **Monitoring→Monitor New Statistic...**<br>**Result:** The **Add statistics to this profile** dialog box appears. |
| 5 | Expand the view.<br>**Result:** Mail statistics appear. |
| 6 | Select the following statistics:<br>■ **Dead**<br>■ **Waiting**<br>■ **TransferFailures** |
| 7 | Click **OK**.<br>**Result:** Mail statistics appear in monitor. |
| 8 | Click **Profiles** Profiles and select **Save As...** |
| 9 | Enter Mail Monitoring. |
| 10 | Click **OK**. |

# Enabling Message Tracking

Domino provides the ability to track a sent mail message across servers. With message tracking enabled, Domino stores information about each mail message in a database (Mtcstore.nsf). The Message Tracking facility can:

- Track messages across domains.
- Be used by administrators and users from a Notes client or Web browser.
- Provide reports of where a particular mail message was sent.

**Note:** Only those messages sent after enabling message tracking can be tracked. Both administrators and users can request tracking reports.

## Enable message tracking

Follow these steps to enable message tracking.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your server. |
| 2 | Select the **Configuration** tab→**Messaging** view→**Configurations** view. |
| 3 | Edit the Configuration Settings document. |
| 4 | Select the **Router/SMTP** tab→**Message Tracking** tab, then:<br><br>a. In the Message Tracking field, select **Enabled**.<br>b. In the Message Tracking collection interval field, accept or change the default.<br>c. In the Log message subjects field, choose **Yes**, and click **OK**.<br>d. In the Allowed to track messages and Allowed to track subjects fields, select the **LocalDomainAdmins** and **LocalDomainServers** groups. |
| 5 | Click **Save** to save the Configuration Settings document. |
| 6 | Select the **Server** tab→**Status** tab→**Server Console** view, and click **Live**. |
| 7 | Watch the server console for messages related to message tracking.<br>This may take a few minutes. Or, enter `Tell router update config`. |

**Note:** For more information about using message tracking across domains or tracking reports, see the Domino Administrator 6 Help database.
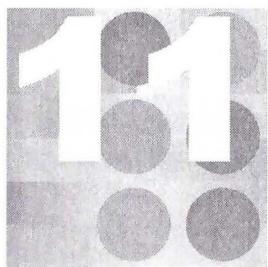
# Resolving Common Mail Problems

Problems with mail routing and delivery may be caused one or more factors. Monitoring helps to isolate the cause of the problem. Once the cause is determined, follow the checklist tasks to resolve the problem.

Some of the tasks, such as checking Connection documents, DNNs, and Replication schedules involves viewing documents, which was covered in previous lessons.

This lesson covers how to:

■ Test mail connections.
■ Check statistics.
■ Start and stop the Router.
■ Force mail to route.
■ Resolve undelivered mail.

## Objectives

Upon completion of this lesson, you should be able to:

✓ Identify troubleshooting tasks.
✓ Test mail connections.
✓ Resolve common mail delivery problems.

# Testing Mail Connections

Domino Administrator includes a Mail trace tool that administrators can use to verify mail delivery and troubleshoot delivery problems. This tool does not actually deliver mail to the user's mail file; the tool simply "pings" the user's mail file and traces the path the message travelled to reach the user's mail file. This is also helpful for testing network connections.

## Send a Mail trace

Follow these steps to send a message to a user to test mail delivery.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your server. |
| 2 | Select the **Messaging** tab→**Mail** tab. |
| 3 | From the **Tools** pane, select **Messaging**→**Send Mail Trace**. |
| 4 | In the **To** field, enter or select the mail user. |
| 5 | In the **Subject** field, enter Mail trace message for *username*. |
| 6 | Choose a **Delivery report** option:<br>■ **Each Server on the Path** – returns a trace report indicating each Router hop.<br>■ **Last Server Only** – returns a Delivery Confirmation report from the destination server only. |
| 7 | Click **Send**. |
| 8 | Click **Done**. |
| 9 | View the trace report in your mail file by:<br>■ Opening your mail file<br>■ Double-clicking the message with the subject entered in Step 5 |

# Restarting the Router

Check to see if the Router is running by looking at the Router task in the Server Monitor. If the Router is not running, start the Router.

## View the Server Monitor

Follow these steps to determine whether mail is being delivered, identify potential problems, and see if the Router is running.

| Step | Action |
|------|--------|
| 1 | From the Domino Administrator, select your server. |
| 2 | Select the **Server** tab→**Monitoring** tab. |
| 3 | Click **Profile** and select the **Mail Monitoring** profile. |
| 4 | Click **Start**. |
| 5 | Check mail statistics and Router task. |

## Stopping and starting the Router

Follow these steps to stop and restart the Router, if the Server Monitor indicates that the Router is not responding.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the mail server to administer. |
| 2 | Select the **Messaging** tab→**Mail** tab. |
| 3 | From the Tools pane, choose **Messaging**→**Stop Router**. |
| 4 | From the Tools pane, choose **Messaging**→**Start Router**. |

**Note:** Stopping and restarting the Router also routes pending mail.

# Forcing Mail to Route

To see if problems are fixed, force mail to route.

## Forcing mail routing

Follow these steps to force mail routing, either to test connections or to send all pending messages (including low priority messages) immediately.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the server. |
| 2 | Select the **Messaging** tab→**Mail** tab. |
| 3 | From the Tools pane, choose **Messaging→Route Mail**. |
| 4 | Enter the destination server's fully distinguished hierarchical name. **Note:** Use quotation marks ("") if the server name contains spaces. For example, use quotes around the server name: "USMail01/SVR/Earth Corporation" |
| 5 | Click **Route** to route mail. |
| 6 | Click **Done**. |

# Managing Dead and Undelivered Mail

Dead and undelivered mail is flagged in the server's Mail.box. Dead mail indicates a problem with the user information. Undelivered mail indicates a problem with mail routing.

## Resolve undelivered and dead mail

Follow these steps to identify and fix dead or undelivered mail.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your server to administer. |
| 2 | Select the **Messaging** tab→**Mail** tab→ *YourServername* **Mailbox** view. |
| 3 | To fix dead mail (flagged with a red icon) or undelivered mail, click **Release** and choose one of the following options:<br><br>Center<br><br>b/SVR/WWCorp<br>ndows NT 5.0<br><br>ilboxes<br>ailbox (mail1.box)<br>ailbox (mail2.box)<br>I<br>g Status<br>g Events<br><br>⊘Release... ▾  ⊘Edit Message  ⊕🗑Delete Message  (?)He<br><br>Resend all dead messages to originally intended recipient<br>Resend selected dead messages to originally intended recipient<br>Return Non Delivery Report to sender of selected dead messages<br>Resend selected held messages<br>Resend selected held messages for a final time<br><br>**Note:** Releasing deletes the message. |

# Troubleshooting Intranet Mail Routing Exercise

In this exercise, you will locate two problems within Worldwide's mail routing environment.
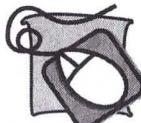
## Send mail to a user in another Domino Named Network

Test mail routing within Worldwide Corporation as follows:

1.  Send a message to a student in another DNN.
    Did the mail message reach the user's mail file?
2.  If the message did not reach the user's mail file, determine the causes of the problem. Consider the following:
    - Router
    - Mail file quotas
    - Replication of Connection documents in the Domino Directory throughout the domain
    - DNN configuration
    - Mail routing Connection documents

    Problem 1:


    Problem 2:


3.  Fix the problems found, then send another message.
    Did the mail message reach the user's mail file?

    If not, why not?

# Troubleshooting Internet Mail Routing Exercise

In this exercise, you will locate a problem that prevents you or your DNN from routing Internet mail to the relay host.
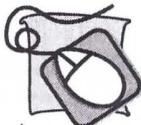
## Send mail to an Internet address

Test mail routing to the Internet as follows:

1. Use the Notes client to create and send a mail message to an Internet user.
   Did the mail message route to Hub/SVR/WWCorp correctly?

2. If the mail message did not route, try to determine the cause of the problem. Consider whether or not any of the following might be the cause:
   - Network connections
   - SMTP settings
   - Inbound (Hub) and outbound (Mail servers) controls

3. After fixing the problem, resend the mail message.
   Did the mail message route to Hub/SVR/WWCorp correctly?

# Troubleshooting Undelivered Mail Exercise

In this exercise, you may find a different type of problem than in the previous exercises.
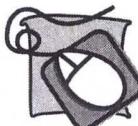
## Determine the cause of undelivered mail

1. Use the Notes client to create and send a mail message to a user in another DNN.

   Did the mail message route to the user correctly?
2. Find at least two ways to see if the mail was undelivered or dead.
3. If the mail message did not route, try to determine the cause of the problem. Consider whether or not any of the following might be the cause:
   - DNN configuration
   - Person documents
   - Location documents

   Did the mail message route to the user correctly?
4. If the mail did not route, try to determine the cause of the problem. Consider whether or not any of the following might be the cause:
   - Replication of Connection documents in the Domino Directory throughout the Domain
   - DNN configuration
   - Mail routing Connection documents
5. After fixing the problem, release the undelivered/dead mail message.

   Did the mail message route to Hub/SVR/WWCorp correctly?

# Deployment Tasks Implemented

In this module, we completed the following steps in the Intranet Mail Routing Checklist:

- Test and troubleshoot intranet mail routing.
- Enable message tracking.
- Test mail delivery to a user's mail file.

## Checklist: Building the Domino environment

The bolded task from the Implementation Checklist was completed in Lessons 10 and 11.

| | Task | Procedure |
|---|---|---|
| ❏ | 1 | Set up the first server. |
| ❏ | 2 | Add an administrator's workstation. |
| ❏ | 3 | Set up access to the Domino Directory. |
| ❏ | 4 | Add Domino servers. |
| ❏ | 5 | Add Organizational Units. |
| ❏ | 6 | Register administrators. |
| ❏ | 7 | Add Notes clients. |
| ❏ | 8 | Create user groups. |
| ❏ | 9 | Create organizational policy. |
| ❏ | 10 | Register users. |
| ❏ | 11 | Set administration preferences. |
| ❏ | 12 | Set up access to servers. |
| ❏ | 13 | Set up server logging. |
| ❏ | 14 | Synchronize Domino system databases throughout the domain. |
| ❏ | 15 | Route mail internally. |
| ❏ | 16 | Route mail to the Internet. |
| ❏ | 17 | Set mail controls. |
| ❏ | **18** | **Test mail routing and delivery.** |

# Appendix A

## Exercise Solutions

# Lesson 4: Adding Notes Clients

# Navigating Domino Administrator Exercise

## Verify the components created so far

Perform the following tasks to complete this exercise:

■ Locate your Server document and the Administrators field.
■ Locate the Certifier documents.
■ Locate your Person document and mail file name.
■ Locate the Group document.
■ Locate your server's Mail.box.
■ Locate your mail file.

## Locate your Server document and the Administrators field

Follow these steps to locate your Server document and the Administrators field on the Security tab in your Server document.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the **Configuration** tab→**Server** section→**All Server Documents** view. |
| 2 | Double-click your Server document to open it. |
| 3 | Click the **Security** tab and note the **Administrators** field.<br>**Result:** Your instructor added LocalDomainServers as well as the original entry, which was LocalDomainAdmins. |
| 4 | Click the **X** on the task window to close the Server document. |

**Lesson 4: Adding Notes Clients...**(continued)

**Navigating Domino Administrator Exercise...**(continued)

## Locate the Certifier documents

Follow these steps to locate the Certifier documents.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the **Configuration** tab→**Certificates** section→**Certificates** view. |
| 2 | Scroll to the bottom of the view. |
| 3 | Click **Notes Certifiers**→**WWCorp** and note the names of the four certifiers. |

## Locate your Person document and mail file name

Follow these steps to locate your Person document and your mail file name.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the **People & Groups** tab→**Domino Directories** section→**WWCorp's Directory** section→**People** view. |
| 2 | Double-click your Person document to open it. |
| 3 | On the **Basics** tab, note your mail server and the path and file name of your mail file. |

## Locate the Group document

Follow these steps to locate the Group document you created.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the **People & Groups** tab→**Domino Directories** section→**WWCorp's Directory** section→**Groups** view. |
| 2 | Locate the Group document you created. |

**Lesson 4: Adding Notes Clients...**(continued)

**Navigating Domino Administrator Exercise...**(continued)

## Locate your server's Mail.box

Follow this step to locate your server's Mail.box.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the **Messaging** tab→**Mail** tab→server Mailbox **(Mail.box)**. |

## Locate your mail file

Follow these steps to locate your mail file and verify its file name.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the **Files** tab→drive:\**domino\data** section→**Domino** section→**Mail** view. |
| 2 | Locate the mail file that matches the name you noted in the Person document. |

**Lesson 4: Adding Notes Clients...**(continued)

# Registering Users Exercise

## Register users

Follow these steps to register a new administrator.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your server to administer. |
| 2 | Select the **People & Groups** tab→**Domino Directories** section→**WWCorp's Directory** section→**People** view. |
| 3 | Choose **People**→**Register** from the Tools menu. |
| 4 | Click **Cancel** when prompted for the certifier password, |
| 5 | Click **Certifier ID**, select the appropriate certifier ID for your region, and click **Open**.<br>Then, click **OK**. |
| 6 | Enter the certifier ID password (provided by the instructor), and click **OK**. |
| 7 | On the **Certifier Recovery Information Warning**, select **Do not show this warning for this certifier ID in the future**, and click **OK**. |
| 8 | On the **Basics** panel, perform the following steps:<br>■ Click **Registration Server**, select your server, and click **OK**.<br>■ Enter the names based on the table.<br>■ Click **Password Options** and select the following:<br>　■ Slide the Password Quality scale to select **Weak password, not very secure (6)**.<br>　■ Select **Set internet password** to make the initial Internet password the same as the Notes password.<br>　■ Select **Synch internet password with Notes ID password**, and click **OK**.<br>　　**Note:** This keeps the Internet password synchronized with the Notes password whenever the user changes the Notes password.<br>　■ Enter `lotusnotes` for the password. |
| 9 | Click **Advanced**. |
| 10 | Add the user to the appropriate group based on the table. |
| 11 | Select the appropriate policy based on the table. |
| 12 | Click ✓. |
| 13 | Repeat Steps 8 through 11 to add another user to the queue. |
| 14 | Click **Register All**. |

# Lesson 5: Setting Up Server Administration

# Setting Administration Access Exercise

## Set administration access

Perform the following tasks to complete this exercise:

- Modify administration levels.
- Access a server in the other administrator group.
- Attempt to compact a database using two methods:
  - Compact a database from the console.
  - Compact the database using menus.
- Record administration access results.

## Modify administration levels

Follow these steps to modify administration levels.

| Step | Action |
|------|--------|
| 1 | In the **Domino Administrator**, select the **Configuration** tab→**All Servers Documents** view, then open your Server document. |
| 2 | Select the **Security** tab, then click **Edit Server**. |
| 3 | In the **Administrators** field:<br>■ If you are in the East OU, enter<br>  `*/East/WWCorp`<br>■ If you are in the West OU, enter<br>  `*/West/WWCorp` |
| 4 | In the **View-only Administrators** field:<br>■ If you are in the East OU, enter<br>  `*/West/WWCorp`<br>■ If you are in the West OU, enter<br>  `*/East/WWCorp` |
| 5 | Click **Save & Close**. |

## Lesson 5: Setting Up Server Administration...*(continued)*

### Setting Administration Access Exercise...*(continued)*

## Access a server in the other administrator group

Follow these steps to access a server in the other administrator group.

| Step | Action |
|------|--------|
| 1 | Choose **File→Open Server**. |
| 2 | Enter the name of a server in the other OU. |
| 3 | Click **OK**. |

## Attempt to compact a database from the console

Follow these steps to attempt to compact a database from the console.

| Step | Action |
|------|--------|
| 1 | Select the **Server** tab→**Status** tab→**Server Console** view. |
| 2 | In the **Domino Command** field, enter the following command:<br>`Load Compact Busytime.nsf` |
| 3 | Click **Send**.<br>**Result:** The status bar displays an error saying that you are not authorized to use this remote console command. |

## Compact the database using menus

Follow these steps to compact the same database using menus.

| Step | Action |
|------|--------|
| 1 | Select the **Files** tab. |
| 2 | Highlight the **Local free time info** database (Busytime.nsf). |
| 3 | From the **Tools** pane, choose **Database→Compact**. |
| 4 | Keep default settings, and click **OK**.<br>**Result:** The database should compact successfully using the menu commands. The **View-only Administrators** field restricts console commands, not menu commands. |

## Lesson 5: Setting Up Server Administration...*(continued)*

### Setting Administration Access Exercise...*(continued)*

## Record administration access results

- Was the Domino Administrator interface different when you changed servers?
  **Answer:** No
- For the server in the other group, what tasks could you perform?
  **Answer:** Compact a database, but only using the Administrator menu commands, not using the console.
- Were the results expected, based on the access settings?
  **Answer:** Yes

# Lesson 6: Synchronizing Domino System Databases

## Replicating Selected Databases Exercise

### Create a Connection document for the Domino Directory

Follow these steps to create a Connection document that replicates Names.nsf from the Hub server to your server every two hours.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the server to administer. |
| 2 | Select the **Configuration** tab→**Replication** section→**Connections** view. |
| 3 | Click **Add Connection**. |
| 4 | On the **Basics** tab, select **Local Area Network** for the Connection type. |
| 5 | Enter the following information for the source server and domain:<br>■ **Source server:** Hub/SVR/WWCorp<br>■ **Source domain:** WWCorp |
| 6 | Enter the following information for the destination server and domain:<br>■ **Destination server:** Enter your server's hierarchical name.<br>■ **Destination domain:** WWCorp |
| 7 | Click **Choose ports**, select **TCPIP**, and click **OK**. |
| 8 | On the **Replication/Routing** tab, enter information in the appropriate fields according to the descriptions below.<br><br>| Field | Description |<br>\|---\|---\|<br>\| **Replication Task** \| Set to **enabled**. \|<br>\| **Replicate databases of \_\_\_ priority** \| Leave this at default (Low & Medium & High) in case someone changes the priority in the replication settings of the Domino Directory. \|<br>\| **Replication Type** \| Select **Pull Push**. \|<br>\| **Files/Directories to Replicate** \| Enter Names.nsf \|<br>\| **Replication Time Limit** \| Leave this blank for classroom purposes. \| |

## Lesson 6: Synchronizing Domino System Databases...(continued)

## Replicating Selected Databases Exercise...(continued)

### Create a Connection document for the Domino Directory...

| Step | Action |
|------|--------|
| 9 | On the **Schedule** tab, enter the information in the appropriate fields according to the descriptions below. |

| Field | Description |
|-------|-------------|
| **Schedule** | Set to **Enabled**. |
| **Connect at times** | Enter `12:00 AM - 11:59 PM` |
| **Repeat interval of** | Enter `120` minutes. |
| **Days of week** | Leave the following default days: **Sun, Mon, Tue, Wed, Thu, Fri, Sat** |

| Step | Action |
|------|--------|
| 10 | Click **Save & Close**. |

## Lesson 6: Synchronizing Domino System Databases...*(continued)*
# Monitoring the Replication Schedule Exercise

## Replicate the Connection documents

Follow these steps to replicate the Connection documents in the Domino Directory.

| Step | Action |
|------|--------|
| 1 | In the Domino Administrator, select the **Server** tab→**Server Tasks** view. |
| 2 | From the Tools pane, choose **Server**→**Replicate**. |
| 3 | In the dialog box, perform the following:<br>■ For **Which server do you want to replicate with?**, select **Hub/SVR/WWCorp**.<br>■ For Replicate, select **Selected database**, click **Database**, select **WWCorp's Directory**, and click **OK**.<br>■ Click **Replicate**. |
| 4 | When replication is finished, click **Done**. |

## Use the Replication Tools

Follow these steps to use the Replication Tools.

| Step | Action |
|------|--------|
| 1 | In the Domino Administrator, select the **Server** tab→**Status** tab→**Server Tasks** view. |
| 2 | Locate the **Maps Extractor** task. If it is not listed, use the Tools pane to select **Task**→**Start**, and select **Maps Extractor**. Then, click **Start Task**, and click **Done**. |
| 3 | Select the **Replication** tab→**Replication Events** view, and open each document to verify that data was exchanged between replicas. |
| 4 | Select the **Replication Topology**→**By Connections** view to see a map that represents the servers between which there are Connection documents.<br>**Note:** The map shows all Connection documents, even ones in which replication is disabled. |

# Lesson 7: Setting Up Intranet Mail Routing

# Defining Key Mail Routing Components Exercise

## Define mail routing components

The following table identifies the mail routing components.

| Term | Definition |
|------|------------|
| Mail file | The Domino database in which the user creates, sends, retrieves, and stores mail messages. |
| Mail server | A user's mail server is the server where the user's mail file resides and is specified in the Person document in the Domino Directory. |
| Mailer | The Mailer resides on the workstation and performs these tasks:<br>■ Verifies the existence and spelling of the name(s) if the recipient is listed in the Domino Directory.<br>■ Converts the message to Multipurpose Internet Mail Extensions (MIME), if necessary.<br>■ Deposits the message in Mail.box on the sender's mail server. |
| Domino Directory | The Domino database that stores information about the sender's (and possibly recipient's) mail server, mail file system, mail file name, mail address, and connections to other servers for transfer and delivery. |
| Mail.box | A special database that resides on every server used for mail delivery. Mail is temporarily stored in Mail.box, before the router delivers or transfers the mail. |
| Router | A server-based task that delivers and transfers mail. It checks the Domino Directory for connections to other servers and deposits mail in users' mail files and other servers' Mail.box. |

**Lesson 7: Setting Up Intranet Mail Routing...**(continued)
# Testing DNNs Exercise

## Send messages to users

1.  Create a mail message and send it to a user in your DNN. For example, if you are in the **WWCorpEast** DNN, send it to a user in **WWCorpEast**.

    The user should receive the message because both mail servers are in the same DNN.

2.  Create a mail message and send it to **Doctor Notes**.

    Doctor Notes should not receive the message because Doctor Notes is in a different DNN: **WWCorpHQ**.

## Lesson 7: Setting Up Intranet Mail Routing...*(continued)*
# Testing Connection Documents Exercise

### Send messages to users

1. Create a mail message and send it to a user in a different DNN. For example, if you are in the **WWCorpEast** DNN, send it to a user in **WWCorpWest** or **WWCorpHQ**.
2. Create a mail message and send it to **Doctor Notes**.

   All users should receive the message because Connection documents allow for mail to be sent to different DNNs.

# Lesson 9: Establishing Mail Controls

# Setting Mail Controls Exercise

## Use mail controls to establish standards

Perform the following tasks to complete this exercise:

- Create a quota and threshold on the user's mail file.
- Set a quota restriction on the user's mail file.
- Enable mail journaling.
- Create a mail rule to deny messages containing specific attachments.
- Create a mail rule to journal messages from Doctor Notes.
- Activate the rules.
- Use mail controls to establish standards.
- Test mail controls.

## Create a quota and threshold on the user's mail file

Follow these steps to create a quota of 15 MB and a threshold of 14 MB on your user's mail file.

| Step | Action |
|------|--------|
| 1 | From the Files tab, select your user's mail database. |
| 2 | From the Tools pane, select **Database→Quotas...**<br>**Result:** The Set Quotas dialog box appears. |
| 3 | Click **Set database quota to** and enter 15. |
| 4 | Click **Set warning threshold to** and enter 14. |
| 5 | Click **OK**. |

## Lesson 9: Establishing Mail Controls...*(continued)*

## Setting Mail Controls Exercise...*(continued)*

## Set a quota restriction on the user's mail file

Follow these steps to set a quota restriction on your user's mail file.

| Step | Action |
|------|--------|
| 1 | Click the **Configuration** tab→**Messaging** section→**Configurations** view. |
| 2 | Select your server and click **Edit Configuration**. |
| 3 | Click the **Router/SMTP** tab→**Restrictions and Controls** tab→**Delivery Controls** tab. |
| 4 | For **Over warning threshold notifications**, select **Per Time Interval**. **Result:** The Warning Interval field appears. |
| 5 | For **Warning interval,** select **Days**. Enter 1. |
| 6 | For **Over quota notification**, select **Per message** to send a message to the user when the quota is exceeded. |
| 7 | For **Over quota enforcement**, select **Non deliver to originator**. |
| 8 | Click **Save & Close** to save the Configuration Settings document. |
| 9 | Enter Tell Router Update Configuration at the server console. |

## Lesson 9: Establishing Mail Controls...*(continued)*

### Setting Mail Controls Exercise...*(continued)*

### Enable mail journaling

Follow these steps to enable mail journaling.

| Step | Action |
|------|--------|
| 1 | Click the **Configuration** tab→**Messaging** section→**Configurations** view. |
| 2 | Select your server and click **Edit Configuration**. |
| 3 | Click the **Router/SMTP** tab→**Advanced** tab→**Journaling** tab. |
| 4 | In the **Basics** section, complete the fields as follows:<br>■ **Journaling** – **Enabled**<br>■ **Field encryption exclusion list** – Use the default values.<br>■ **Method** – **Copy to local database** (default)<br>■ **Encrypt on behalf of user** – *your administrator username*<br>In the **Database Management** section, complete the fields as follows:<br>■ **Method** – **Periodic Rollover**<br>■ **Periodicity** – 1 |
| 5 | Click **Save & Close** to save the Configuration Settings document. |
| 6 | Enter Tell Router Update Configuration at the server console. |

**Lesson 9: Establishing Mail Controls...**(*continued*)

**Setting Mail Controls Exercise...**(*continued*)

## Create a mail rule to deny messages containing specific attachments

Follow these steps to create a mail rule to disallow messages containing .abc attachments.

| Step | Action |
|------|--------|
| 1 | Click the **Configuration** tab→**Messaging**→**Configurations** view. |
| 2 | Select your server and click **Edit Configuration**. |
| 3 | Click the **Router/SMTP** tab→**Restrictions and Controls** tab→**Rules** tab. Click **New Rule**. |
| 4 | For **Specify Conditions**→**Create Condition**, perform the following:<br>■ Select **Any attachment name**.<br>■ Select **Contains**.<br>■ Enter .abc<br>■ Click **Add**. |
| 5 | For **Specify Actions**, perform the following:<br>■ Select **don't accept message**.<br>■ Click **Add Action**. |
| 6 | Click **OK** to save the rule. |
| 7 | In the Configuration Settings document, click **Save & Close**. |

**Lesson 9: Establishing Mail Controls...**(continued)

**Setting Mail Controls Exercise...**(continued)

## Create a mail rule to journal messages from Doctor Notes

Follow these steps to create a rule to save all messages from Doctor Notes to the mail journal.

| Step | Action |
|------|--------|
| 1 | Click the **Configuration** tab→**Messaging**→**Configurations** view. |
| 2 | Select your server and click **Edit Configuration**. |
| 3 | Click the **Router/SMTP** tab→**Restrictions and Controls** tab→**Rules** tab. Click **New Rule**. |
| 4 | For **Specify Conditions**→**Create Condition**, perform the following:<br>■ Select **sender**.<br>■ Select **Is**.<br>■ Enter Doctor Notes<br>■ Click **Add**. |
| 5 | For **Specify Actions**, perform the following:<br>■ Select **journal this message**.<br>■ Click **Add Action**. |
| 6 | Click **OK** to save the rule. |
| 7 | In the Configuration Settings document, click **Save & Close**. |

## Activate the rules

Follow these steps to activate the rules.

| Step | Action |
|------|--------|
| 1 | Click the **Server** tab→**Status** tab→**Server Console** view. |
| 2 | Click **Live**. |
| 3 | In the **Domino Command** field of the console, enter the following command:<br>set rules<br>Click **Send**. |

**Lesson 9: Establishing Mail Controls...**(continued)

**Setting Mail Controls Exercise...**(continued)

## Use mail controls to establish standards

Follow these steps to test the quota.

| Step | Action |
|------|--------|
| 1 | Create a mail message addressed to your user. |
| 2 | Attach the Help database to make the message large enough to trigger the quota. |
| 3 | Send the message. |

## Test mail controls

Follow these steps to test the rules.

| Step | Action |
|------|--------|
| 1 | Click the **People & Groups** tab. |
| 2 | Choose **Create→Mail→Memo**. |
| 3 | Address the memo to any user listed in the People view. |
| 4 | Attach the Test.abc file to the message. |
| 5 | Click **Send**.<br>**Result:** A message box displays: "Document has been rejected by mail rule <server_name> mail.box." |
| 6 | Click **OK** to dismiss the message box. |
| 7 | Press ESCAPE and click **Discard** to dismiss the memo form. |
| 8 | Open the Mailjrn.nsf database to see if there are any messages from Doctor Notes. |

## Lesson 9: Establishing Mail Controls...(continued)
# Testing Archive Policy Exercise

### Assign and test the archive policy

Perform the following tasks to complete this exercise:

- Assign an explicit policy to yourself.
- Try to archive your mail.

### Assign an explicit policy to yourself

Follow these steps to assign an explicit policy to yourself.

| Step | Action |
|------|--------|
| 1 | Click the **People & Groups** tab→**Domino Directory**→**WWCorp's Directory**. |
| 2 | In the **People** view, select yourself and choose **Tools→assign Policy**. |
| 3 | Select your Person document and click **Edit person**. <br> **Note:** You must be in edit mode to see assigned policies in the Person document. |
| 4 | Click the **Administration** tab and locate the **Policy Management section→ Assigned policy** field to verify the policy was assigned. |
| 5 | Click **Save & Close**. |

### Try to archive your mail

Follow these steps to see if you can archive your mail.

| Step | Action |
|------|--------|
| 1 | Open your mail file. |
| 2 | Choose **Actions→Archive→Settings**. <br> **Result:** The **Archive Settings** dialog box appears with settings disabled and a message stating that archiving is not permitted. |
| 3 | Click **Cancel**. |

# Lesson 11: Resolving Common Mail Problems

## Troubleshooting Intranet Mail Routing Exercise

### Send mail to a user in another Domino Named Network

Perform the following tasks to complete this exercise:

- Restart the Router.
- Fix server names in Connection documents.
- Force replication.

### Restart the Router

Follow these steps to restart the Router.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select the mail server to administer. |
| 2 | Select the **Messaging** tab→**Mail** tab. |
| 3 | From the Tools pane, choose **Messaging→Stop Router**. |
| 4 | From the Tools pane, choose **Messaging→Start Router**. |

**Lesson 11: Resolving Common Mail Problems...**(continued)

**Troubleshooting Intranet Mail Routing Exercise...**(continued)

## Fix server names in Connection documents

Follow these steps to fix server names in Connection documents.

| Step | Action |
|------|--------|
| 1 | From Domino Administrator, select your server's Connection document. Click **Edit Connection**. |
| 2 | Correct the server names in the source and/or destination fields of the Connection documents. |
| 3 | Click **Save & Close**. |
| 4 | Enter `tell router update config` at the server console. |

## Force replication

Follow these steps **twice** to force replication.

| Step | Action |
|------|--------|
| 1 | Click the **Server** tab→**Status** tab→**Server Console** view. |
| 2 | Click **Live**. |
| 3 | In the **Domino Command** field of the console, enter the following command: `rep Hub/SVR/WWCorp` Click **Send**. |

**Lesson 11: Resolving Common Mail Problems...**(continued)

# Troubleshooting Internet Mail Routing Exercise

## Send mail to an Internet address

Perform the following tasks to complete this exercise:

- Enable SMTP externally.
- Set SMTP controls.
- Force replication.

## Enable SMTP externally

East Admins follow these steps to enable SMTP externally.

| Step | Action |
|------|--------|
| 1 | Edit your Configuration Settings document. |
| 2 | Click the **Router/SMTP** tab→**Basics** tab. |
| 3 | On the **Basics** tab, complete the SMTP fields as follows:<br>■ SMTP used when sending Messages outside of the local Internet Domain: **Enabled** |
| 4 | Click **Save & Close**. |
| 5 | Enter `tell router update config` at the server console. |

**Lesson 11: Resolving Common Mail Problems...***(continued)*

**Troubleshooting Internet Mail Routing Exercise...***(continued)*

## Set SMTP controls

West Admins follow these steps to set SMTP controls.

| Step | Action |
|------|--------|
| 1 | Edit your Configuration Settings document. |
| 2 | Click the **Router/SMTP** tab→**Restrictions and Controls** tab→**SMTP Outbound Controls** tab. |
| 3 | In the **Deny messages from the following Notes addresses to be sent to the Internet** field, enter `GlobalSales`. |
| 4 | Click **Save & Close** |
| 5 | Enter `tell router update config` at the server console. |

## Force replication

Follow these steps **twice** to force replication.

| Step | Action |
|------|--------|
| 1 | Click the **Server** tab→**Status** tab→**Server Console** view. |
| 2 | Click **Live**. |
| 3 | In the **Domino Command** field of the console, enter the following command: `rep Hub/SVR/WWCorp` Click **Send**. |

## Lesson 11: Resolving Common Mail Problems...*(continued)*
# Troubleshooting Undelivered Mail Exercise

## Determine the cause of undelivered mail

Perform the following tasks to complete this exercise:

■ Change the person information.
■ Change the Location document.
■ Force replication.

## Change the person information

Follow these steps to change the person information.

| Step | Action |
|------|--------|
| 1 | Click the **People & Groups** tab. |
| 2 | Select your Person document and click **Edit person**. |
| 3 | Click the **Basics** tab and locate the **Mail file** field. |
| 4 | Change the location of the mail file. |
| 5 | Click **Save & Close**. |

## Change the Location document

Follow these steps to change the Location document.

| Step | Action |
|------|--------|
| 1 | In the Notes client message bar, click the Location document in the lower right. |
| 2 | Select the **Office (Network)** location. |

**Lesson 11: Resolving Common Mail Problems...**(continued)

**Troubleshooting Undelivered Mail Exercise...**(continued)

## Force replication

Follow these steps **twice** to force replication.

| Step | Action |
|------|--------|
| 1 | Click the **Server** tab→**Status** tab→**Server Console** view. |
| 2 | Click **Live**. |
| 3 | In the **Domino Command** field of the console, enter the following command: `rep Hub/SVR/WWCorp` Click **Send**. |

# Appendix B
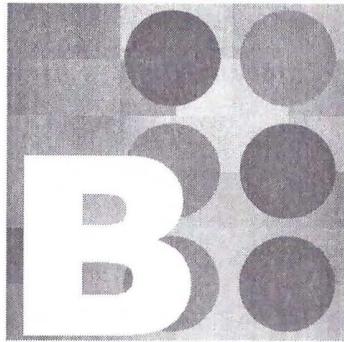
## Worldwide Corporation Infrastructure Plan

# About This Document

This document gives an overview of Worldwide Corporation's infrastructure. It is intended to provide an overall view of the environment as designed by the planning team. It does not provide details on specific Domino functionality.

This document will be continually updated. Administrators should refer to the Policies and Procedures database on any Worldwide Corporation server for the latest version of this document.

IBM Lotus Notes and Domino is Worldwide Corporation's global standard for electronic mail and for developing and deploying groupware applications.

# Organization Structure

The structure of Worldwide Corporation appears in the following diagram.

## Headquarters

**Manufacturing
Research and Development
Product Management
Quality Control
Finance
Human Resources
System Aministration**

## West

**Sales and Marketing
Customer Support
Distribution
Human Resources
Finance
System Administration**

Sales Offices

Sales Reps

## East

**Sales and Marketing
Customer Support
Distribution
Human Resources
Finance
System Administration**

Sales Offices

Sales Reps

# User Needs

Worldwide Corporation's users require the following access to applications.

| Information Groups | Who | Domino Server |
|---|---|---|
| E-mail/Communication | All | Application |
| Policies and procedures | All | Web |
| ■ Price list<br>■ Product catalogue | ■ Sales<br>■ Customers<br>■ Resellers | Application<br>Web |
| Customer Information:<br>■ (DECs)<br>■ Customer service application | ■ Sales<br>■ Support<br>■ Distribution | Application<br>Mail<br>Communication |
| Process information:<br>■ Product design<br>■ Order processing | ■ Development<br>■ Product management<br>■ Manufacturing<br>■ Sales | Application<br>Web |
| Human Resources | All | Application |

**Note:** User needs were determined by function across all geographies.

# Servers by Task

Worldwide Corporation will designate servers to specific tasks based on Information Groups. The following table lists the servers, associated tasks, and rationale behind the decision.

| Server Type | Tasks | Rationale |
|---|---|---|
| Hub | Routes mail and replication databases to and from other hub or spoke servers. | Provides easier administration and maintenance. |
| Internet Messaging | Provides non-Domino mail services, such as:<br>■ POP3<br>■ IMAP<br>■ SMTP<br>■ NNTP<br>■ LDAP | Use Domino server to:<br>■ Provide employees with access to non-Domino mail files. |
| Mail | Stores users' mail and databases and routes mail across the intranet and Internet. | ■ Provide easier administration.<br>■ Minimize server processor load.<br>■ Reduce network traffic.<br>■ Provide predictable server performance and grouping of users.<br>■ Allow user access to databases when mail server is down. |
| Application | Stores application databases. | ■ Provide easier administration.<br>■ Group applications by usage, replication needs, and/or security requirements.<br>■ Allow tuning of server to optimize performance and response time independent of mail usage.<br>■ Ease expansion by adding new database servers as usage and storage needs increase. |
| Web | Provides access to an application from the Internet or to corporate intranet. Can use either:<br>■ Domino HTTP stack<br>■ Microsoft IIS | ■ Can place outside the firewall for Internet access.<br>■ Provide employees with access to corporate information from a browser. |

# Servers by Location

Worldwide Corporation will have one Domino Domain (WWCorp) that includes all Worldwide Corporation offices. Worldwide Corporation's Internet domain name was previously established as WWCorp.com.

## Topology

Worldwide Corporation has selected a hub-and-spoke topology for ease of management and future expansion.

Each regional office will have a hub server and one or more spoke servers. Each site will be set up to run independently, although they will be connected to the corporate hub.

Connection documents are required for replication to tell the corporate hub how and when to communicate with other servers and for spoke servers to connect to the corporate hub.

Headquarters is the center of the infrastructure and houses the main hub server, which has high-speed links running to the offices. Each individual Domino server is responsible for its own mail routing and replication events. The hub server is responsible for replication of the critical databases between all its spoke servers.

The following map shows the locations and types of servers.



**Administering IBM Lotus Domino 6: Building the Infrastructure**
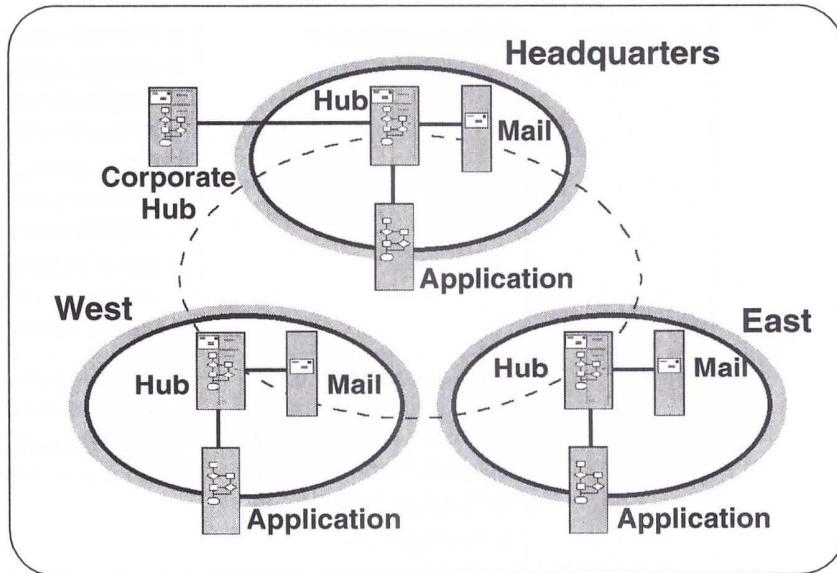
**Servers by Location...**(continued)

## The Headquarters hub server

The hub server is the administration server for the Worldwide Corporation domain and replicates the Directory Catalog and the Administration Requests database to all other Domino servers within the Worldwide Corporation domain (WWCorp).

Sales offices and sales representatives will dial in to their local regional hub server using Notes clients and Internet clients, such as browsers.

Customers and vendors will have access through a Web server at Headquarters.

## Domino Named Networks

The regional sites will be logically grouped into Domino Named Networks (DNNs), since they share a common protocol (TCP/IP) and are constantly connected.

Grouping the Domino Named Networks this way will ensure that users see information on their local servers to reduce network traffic.

Each country office has one or more Domino servers. The following table shows the countries to be configured and the Domino Named Networks (DNNs) for each country.

| Region | Code | DNN | Connect Status |
|---|---|---|---|
| Headquarters | HQ | WWCorpHQ | WAN |
| East | East | WWCorpEast | WAN |
| West | West | WWCorpWest | WAN |

# System Administration

System administration is locally controlled by region, but monitored from the Corporate office.

Administration tasks are controlled by regional administrators.

General policies and guidelines are maintained and distributed from the Corporate office.

Implementation and design changes are carried out after business justifications are submitted and approved.

All system administrators use the Domino Administrator and Web Administrator for all administration tasks.

# Network Strategy

Worldwide Corporation added to their existing WAN by:

- Incorporating TCP/IP as their primary network protocol
- Developing a plan to phase out non-TCP/IP protocols over time
- Using a global frame relay network as its global WAN
- Adding networking to the West office
- Adding networking connections to all offices from Headquarters
- Upgrading existing server network cards and adding network cards

Although the WAN was upgraded, Worldwide Corporation does not want to rely solely on the network. They purchased additional servers for regional offices to ensure reliability and consistency across geographical locations.

# Directory Strategy

There will be only one Domino domain (WWCorp) for the entire Worldwide Corporation Domino environment. The model matches the physical layout of the Worldwide Corporation WAN. The first configured server (the corporate hub) will have full administration rights over the entire domain.

The Domino Directory will reside on the corporate hub server in Lisbon, and replicate to each regional hub server. The corporate hub will create Directory Catalogs, and replicate to regional hubs for use by remote users. Remote users can keep a local replica of the Directory Catalog on the client for faster response time and timely encryption of messages.

System administrators will periodically update the Directory Catalog and replicate once a day to hub servers.

Directory access is from:

- Notes clients
- Web browsers
- Other e-mail and directory clients

# Replication Topology

A hub-and-spoke topology will be used for replication. This structure consists of a main hub with two spoke servers, which are the regional hub servers. Each regional hub server also has its own spoke servers.

The corporate hub server will be the main hub and take overall control of replication. There will be Connection documents from the main hub to all regional hub servers.

Replication will be Pull Push.

The following map shows Worldwide Corporation's replication topology.
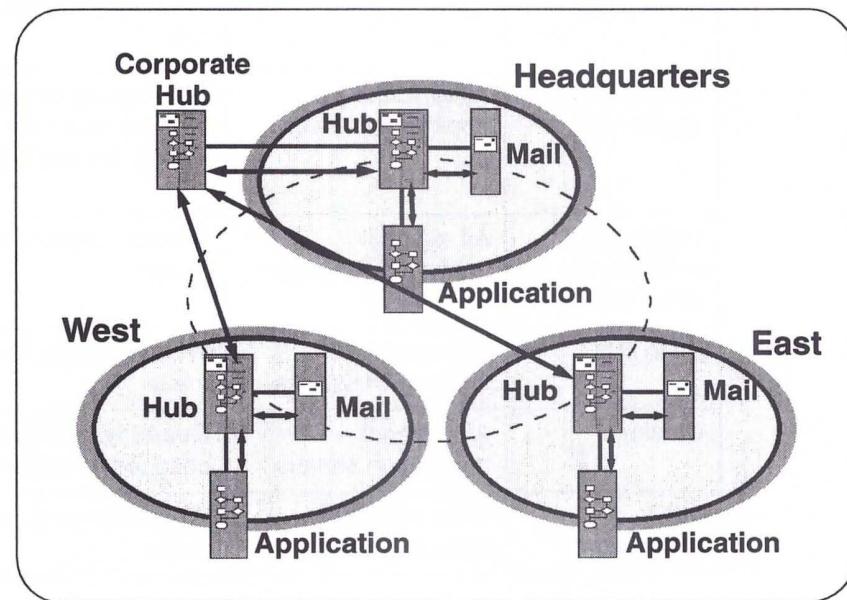
# Application Types

Types of applications will be separated and reside on different application servers to isolate problems and simplify management. All applications will be replicated to the corporate hub for central control and reliability.

| Application Type | Resides on Corporate Application Server and... | Replication Schedule | Policies and Restrictions |
|---|---|---|---|
| Customer service application | All regional application servers | Daily during mutual off-peak hours for Lisbon and regional hub | Local languages and customs, escalation procedures |
| Purchasing application | All regional application servers | Daily during mutual off-peak hours for Lisbon and regional hub | Local languages and regulations |
| Policies and procedures database | All regional application servers | When changes are made | Local languages and customs |
| Price lists | All regional application servers | When changes are made | Local languages and currencies |
| Catalogs | All regional application servers | Quarterly, or when changes are made | Local languages |
| MRP application | West application server | When changes are made | Local languages |

# Mail Routing Strategy

Each region will have its own server that is responsible for local mail delivery, but will rely on the corporate mail server for inbound Internet mail:

- Simple Message Transfer Protocol (SMTP) will route mail to the Internet.
- The Notes Remote Procedure Call (NRPC) will route mail within the corporate intranet.

The following configuration provides for ease of configuration and optimum load balancing and failover:

- One Internet domain
- ISP as a relay host to Internet
- Regional Domino Named Networks (one for each region)
- The corporate hub is enabled to route external mail using the SMTP protocol.
- All mail servers have Connection documents and route mail using NRPC internally.

## Mail administrators

Administrators must perform the following tasks:

- Store the Internet domain name in the Foreign SMTP and Global Domain documents.
- List the inbound mail servers in the MX records in the Domain Name Service under the domain's name. Only one is required. (Note that load balancing for multiple servers is dependent on the algorithm used by the client SMTP system to select a server from the MX records.)
- Configure complete address lookup or configure local part only lookup to identify each mail recipient's mail server so that the router can make the final delivery.

**Mail Routing Strategy...**(continued)

## Mail clients

Initially, all mail users will have Notes mail files. In the future, some mail users may use other Internet mail client software. At that time, Worldwide Corporation will set up select Internet POP3 Messaging Servers for non-Notes mail clients to access mail files on the Domino server.

## Mail monitors and controls

The following mechanisms will be put into place for monitoring and controlling mail:

■ Automated testing of mail routers

■ Mail quotas

■ Mail journaling

■ Maximum message size for inbound and outbound message set to 10 megabytes

■ User restrictions, such as full-text indexing

## Mail routing topology

The following map shows Worldwide Corporation's mail routing topology.
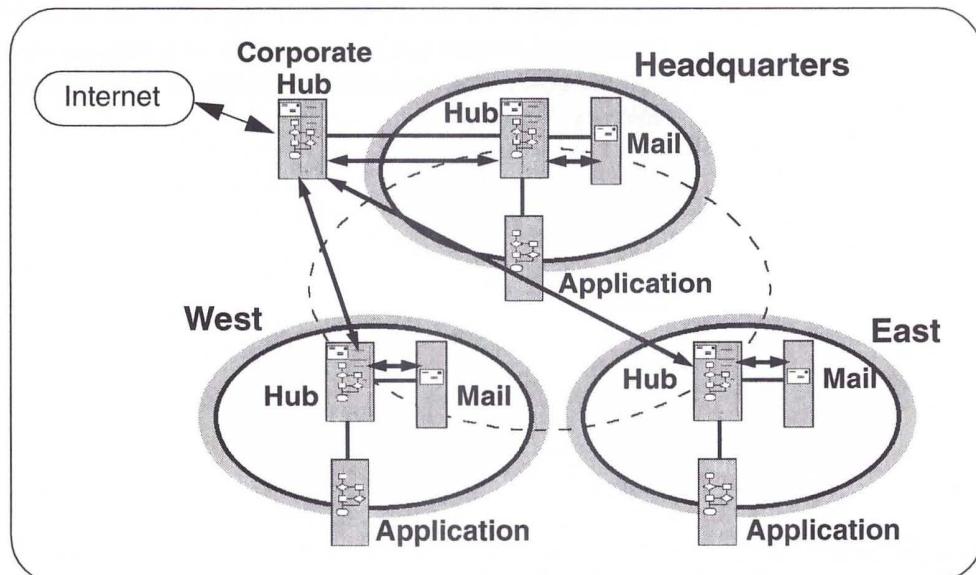
# Worldwide Corporation Naming Conventions

The following table defines the Worldwide Corporation naming scheme.

| Organization Component | Value | Certifier |
|---|---|---|
| Organization (O) | WWCorp | Cert.id |
| Organizational Units (OU) | HQ: Headquarters<br>WEST: West<br>EAST: East<br>SVR: All servers | Hq.id<br>West.id<br>East.id<br>Svr.id |

Organizational units are based on geographical regions.

The servers' organizational unit will be used for better control of management and creation of servers.

All organizational units and common names are descendants of the organization certifier /WWCorp.

## User naming

The following table provides user naming conventions.

| Type | Syntax |
|---|---|
| Common name for Domino environment | Firstname Lastname |
| Internet mail addressing | username@WWCorp.com where username = Firstinitial_Lastname |

## Worldwide Corporation Naming Conventions...(continued)

### Server naming

The following table provides examples of regional server names.

| Region | Code | Server Names (Server Types) |
|--------|------|------------------------------|
| Headquarters | HQ | HQHUB/SVR/WWCorp (Hub/Comm)<br>HQAPP01/SVR/WWCorp (Application)<br>HQMAIL01/SVR/WWCorp (Mail) |
| East | East | EASTHUB/SVR/WWCorp (Hub)<br>EASTAPP01/SVR/WWCorp (Application)<br>EASTMAIL01/SVR/WWCorp (Mail) |
| West | West | WESTHUB/SVR/WWCorp (Hub)<br>WESTAPP01/SVR/WWCorp (Application)<br>WESTMAIL01/SVR/WWCorp (Mail) |

### Naming examples

The following table provides naming examples.

| If You Want to... | Then... |
|-------------------|---------|
| Create a new server. | Use the name XXType##/SVR/WWCorp, where:<br>■ **XX** is the standard country code.<br>■ **Type** is the server type, for example, Mail.<br>■ **##** is the server number of this type.<br>For example, the first mail server in Australia might be: AUMAIL01/SVR/WWCorp |
| Create a new organizational unit. | Use the standard country code that identifies the location of the organizational unit.<br>A new organizational unit for Canada might be: /CN/WWCorp |
| Create a new user. | Certify under the regional organizational unit where the user works.<br>A new user named Sara Jones in London would be: Sara Jones/UK/WWCorp<br>The corresponding Internet name would be: Sara_Jones@WWCorp.com |

**Worldwide Corporation Naming Conventions...**(continued)

## Certifier/ID management policy

The following table describes the certifier/ID management policy.

| Type | Management Policy |
|------|-------------------|
| Organization certifier | ■ Corporate system administrators create the O certifier.<br>■ Corporate system administrators create the OU certifiers.<br>■ Access is limited to two administrators using multiple passwords.<br>■ Store IDs on multiple floppy disks in protected areas. |
| Organizational unit certifiers | ■ Regional administrators and Corporate administrators keep copies of OU certifiers.<br>■ Store IDs on multiple floppy disks in protected areas. |
| Server IDs | ■ Corporate system administrators create all server IDs.<br>■ Store IDs on the server.<br>■ Use only for the server. |
| User IDs | ■ Regional administrators create user IDs.<br>■ Regional system administrators keep copies of IDs in a secure database on the regional hub server.<br>■ Use a Certification Log database to track certification.<br>■ All Certifier IDs have multiple passwords and expiration dates of two years from date of creation.<br>■ Store backups in a secure off-site location. |
| Key files for Internet (X.509) Certificates | ■ Using Domino as a Certificate Authority, administrators will create X.509 certificates using the Certificate Authority Application on a workstation and store the CA key ring on that workstation, not on the server.<br>■ Do not distribute these files to other administrators in the organization.<br>■ Store the certificates in a secure off-site location.<br>■ Store in corporate user Notes ID files.<br>■ Store in trusted LDAP directories (for customers). |

## Worldwide Corporation Naming Conventions...*(continued)*

## Hierarchical naming for Worldwide Corporation

The following diagram shows the organization hierarchy, including currently planned server names.

```
                          /WWCorp
        ┌────────────────────┼────────────────────┐
  /East/WWCorp          /West/WWCorp           /SVR/WWCorp
                                                 │__HUB
                                                 │__HQMAIL01
                                                 │__HQAPP01
                                                 │__WESTHUB
                                                 │__WESTMAIL01
                                                 │__WESTAPP01
                                                 │__EASTHUB
                                                 │__EASTMAIL01
                                                 │__EASTAPP01
```
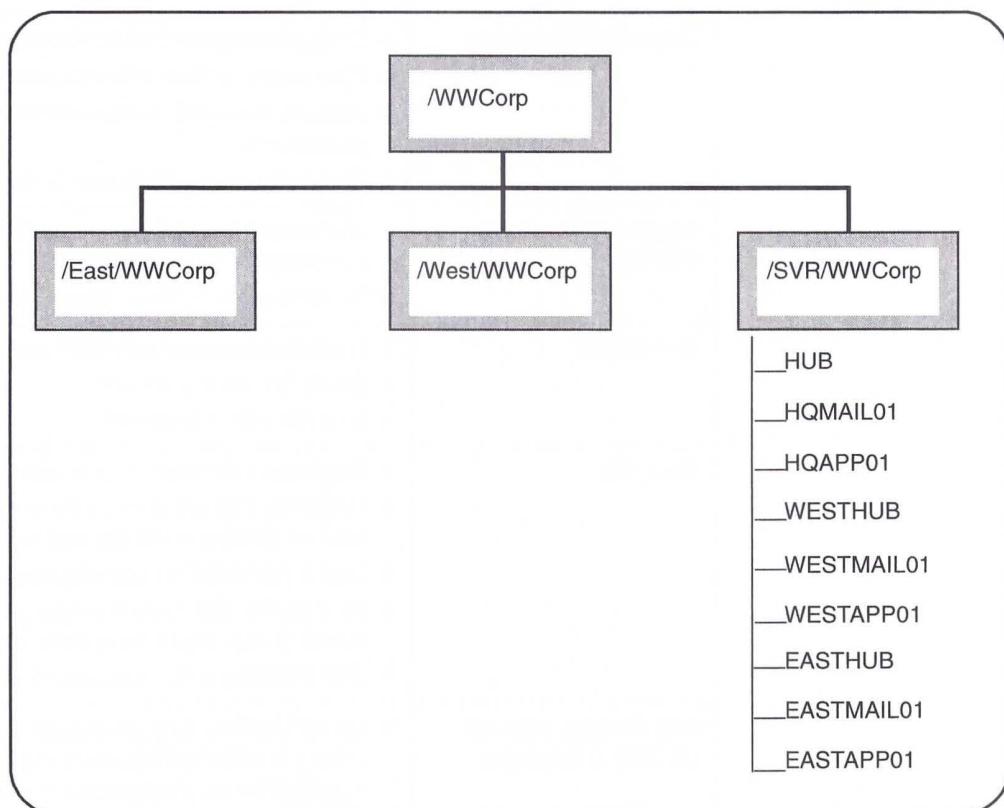
# Remote Access

Worldwide Corporation has determined specific Internet access for remote employees, vendors, resellers, and customers, based on their needs.

## Internet access

The following Internet access will be used:

■ Authenticated access for employees
■ Public access Web server for vendors, resellers, and customers, including controlled access to servers, applications, and data

The following table describes types of access.

| Employees | Customers | Vendors | Resellers |
|---|---|---|---|
| X.509 certificates | Anonymous access to catalog and public company information. **Future:** Username and password access to information about their own orders, for example, shipping information. | Anonymous access | Authenticated access through outside LDAP directories |

## Remote users

Users at offices that do not have direct connections to the WAN can use an Internet Server Provider (ISP) to access the Domino system through a local Firewall server.

Remote users can dial in to their mail server through the local Firewall servers.

# Server Configurations and Security

Worldwide Corporation has determined configurations for servers, including licensing, file structure, and server tasks. Server security has been defined as group access to servers.

## Server types

The following table lists the server licenses that will be used for each of the server types.

| Server Type | Server License | Rationale |
|---|---|---|
| Domino Mail and Internet Messaging servers | Domino Mail Server | To provide Domino and Internet mail services |
| Application and Web servers | Domino Utility Server | To provide custom database applications for Notes and Web clients |
| Hub server | Domino Enterprise Server | To provide the following services:<br>■ Clustering<br>■ Partitioning |

**Server Configurations and Security...**(continued)

## File structure

The following table lists the standard file structure on the servers.

| Path | Contents | Description |
|---|---|---|
| Domino | System files, client files | Client files will be installed for network distribution purposes. |
| Domino\data | Databases, general data files | Domino system databases that are required for Domino to function properly. |
| Domino\data\critical | Databases | Critical applications that require frequent replication. |

Use the default installation file paths whenever possible to ensure standardized training and ease of support and troubleshooting.

**Tip:** Store Domino executables on a separate disk than Domino data for better performance.

These areas of the Domino file structure are only accessible to designated personnel for installation purposes. All other Domino data is protected by operating system security and is accessible to Domino administrators only.

**Server Configurations and Security...**(continued)

## Configuration documents

Every Worldwide Corporation server has its own server Configuration document. This ensures that each server configuration can be modified separately and that there is a log of any changes made.

The Domino configuration database will be used for server setup to streamline and automate setup.

A Configuration document exists for each server type (for example, hub, mail, application) and is then distributed to other servers of the same type.

## Domino tasks by server type

The following table lists the minimum requirements for all server Configuration documents.

| Domino Server Type | Recommended Tasks | |
|---|---|---|
| Standard services for all servers | ■ Mail Router<br>■ Replicator<br>■ Indexer | ■ Agent Manager<br>■ Administration Process<br>■ Event Manager<br>■ Statistics |
| Mail servers | ■ Calendar Connector<br>■ Schedule Manager<br>■ HTTP for Web mail | |
| Application servers | ■ Standard services only, no additional services | |
| Hub servers | ■ HTTP, both mail and applications<br>■ SMTP (Headquarters hub only) | |
| Web servers | ■ HTTP for Web applications | |
| Internet messaging servers | ■ POP3 and SMTP<br>■ IMAP<br>■ LDAP<br>■ NNTP | |

**Server Configurations and Security...**(continued)

## Group naming for server access

Groups will be used to determine access to servers and for added security. The following naming convention will be used to identify the location and type of group:

region[global]descriptionofgroup

For example: HQAdmins or GlobalSales

Within groups, names are sorted in alphabetical order.

## Deny access groups

As an added security feature, Worldwide Corporation will use four groups, which represent access denial to any Worldwide Corporation servers. In each server restrictions setting, these groups will be added in the Not access server fields.

The following table describes the four groups.

| Group Name | Description |
|---|---|
| Deny Access A-F | Denial for people whose surnames begin with A-F. |
| Deny Access G-L | Denial for people whose surnames begin with G-L. |
| Deny Access M-R | Denial for people whose surnames begin with M-R. |
| Deny Access S-Z | Denial for people whose surnames begin with S-Z. |

Before deleting a user from the Domino system, add the user to one of these groups. This will ensure immediate denial to any Worldwide Corporation server.

**Note:** This is subject to replication of the changes throughout the domain, which will take no longer than 60 minutes.

## Server Configurations and Security...*(continued)*

## Server configuration plan

The following table describes the server configuration plan.

| Standard | Requirement |
|---|---|
| Database size quotas | No database size quotas |
| Database names | No database naming standards |
| File system directory structure | Standard directory structure, for example:<br>\Domino\Data\Global\HR1<br>\Domino\Data\Global\Marketing<br>\Domino\Data\Local\Marketing<br>\Domino\Data\Local\Dev1 |
| Groups spanning the entire organization | ■ One group for all server administrators, for example: GlobalAdmins<br>■ Groups for specific categories of employees, for example: GlobalSales |
| Groups at all sites | ■ A group for each region, for example: EastAll (for all Worldwide Corporation employees in East)<br>■ One group for administrators per region, for example: WestAdmins (for all server administrators in West) |

# Client Configurations and Security

Worldwide Corporation has determined configurations for clients, including licensing and registration and desktop settings. Client security has been defined using security policies, including client IDs and certificates and group access to databases.

## Client licenses

Client licenses will be:

- **Notes Client** for most users, all generic IDs, and any contractual or affiliate accounts
- **Domino Designer** for users who will create, modify, or design databases
- **Domino Administrator** for system administrators

## Client deployment

Desktop, registration, and security policies will be used to set up users' environments.

For Internet mail, account documents will be created locally for each mail protocol. Mail will be stored in Notes Rich Text format.

Worldwide Corporation will use policy documents to create and update Location and Connection documents on workstations for dial-up users to determine where and how to locate the servers.

**Client Configurations and Security...**(*continued*)

## Client IDs and certificates

The following table describes the policy regarding client IDs and certificates.

| Type | Policy |
|------|--------|
| Notes client IDs | ■ Certify all IDs using a Domino certificate.<br>■ Users responsible for secure or encrypted information, such as pricing information to resellers, will hold an Internet (X.509) certificate.<br>■ Stored on workstations for all users and encrypted locally.<br>■ Copies are kept in a secure location by regional as well as corporate administrators. |
| Internet client browsers | ■ Accept CA certificate as a trusted root.<br>■ Store internal signed client certificates for access to secure information. |

## Group naming for database access

Groups will be used to determine access to applications. The following naming conventions will be used to identify location and type of group:

region[global]databasenameaccess

**For example:** WestCustomerServiceReaders or GlobalPoliciesReaders

Within groups, names are sorted in alphabetical order.

## File storage

Client-based data files, such as IDs, Notes.ini, and *.dsk, will be stored on the workstation for all users and encrypted locally.

# Implementing the Deployment Plan

Worldwide Corporation has created an Implementation Checklist to help plan the deployment.

## Checklist: Building the Domino environment

Complete these tasks to implement the Notes and Domino components of the Worldwide Corporation deployment plan.

|  | Task | Procedure |
|---|---|---|
| ❑ | 1 | Set up the first server. |
| ❑ | 2 | Add an administrator's workstation. |
| ❑ | 3 | Set up access to the Domino Directory. |
| ❑ | 4 | Add Domino servers. |
| ❑ | 5 | Add Organizational Units. |
| ❑ | 6 | Register administrators. |
| ❑ | 7 | Add Notes clients. |
| ❑ | 8 | Create user groups. |
| ❑ | 9 | Create organizational policy. |
| ❑ | 10 | Register users. |
| ❑ | 11 | Set administration preferences. |
| ❑ | 12 | Set up access to servers. |
| ❑ | 13 | Set up server logging. |
| ❑ | 14 | Synchronize Domino system databases throughout the domain. |
| ❑ | 15 | Route mail internally. |
| ❑ | 16 | Route mail to the Internet. |
| ❑ | 17 | Set mail controls. |
| ❑ | 18 | Test mail routing and delivery. |

# Appendix

## Additional Setup Information

# Removing the Password from a Server ID File

An administrator can remove the password on a server ID if the administrator has physical access to the server ID file and knows the password.

## Why remove the password from a server ID?

Reasons for removing a password include:

■ The ability to restart the server remotely from the console on the Domino Administrator client.

■ The convenience of not having to enter a password to start the server.

Removing the password from a server ID can be a security risk if the server is not locked in a safe room.

## Removing the password from a server ID file

Follow these steps to remove the password on a server ID file.

| Step | Action |
|------|--------|
| 1 | Select the **Configuration** tab. |
| 2 | Choose **Tools→Certification→ID Properties**. |
| 3 | Select the ID file to examine, and click **Open**. |
| 4 | Enter the ID file's password, and click **OK**. |
| 5 | Click **Change Password**. |
| 6 | Click **No Password**. |
| 7 | Click **Yes** to confirm removing the password from the ID file. |
| 8 | Click **OK** to acknowledge the password change. |
| 9 | Click **Close** to close the **ID Properties** dialog box. |

# Preparing to Reconfigure a Server

An administrator may break down a Domino server for the following reasons:

- To change the server's name or role in the organization.
- To create a new test or production domain in the company.

## Breaking down a server

Follow these steps to break down a server in order to reconfigure it.

| Step | Action |
|------|--------|
| 1 | Shut down the server. This ensures that the files to delete are not open. |
| 2 | Edit the Notes.ini file located in the Domino program directory using any text editor so that it contains only the following lines:<br><br>```[Notes]```<br>```Directory=drive:\Domino\Data```<br>```KitType=2```<br><br>Where **drive** is the location where the Domino server software is installed.<br>**Note:** KitType=2 indicates that this machine is a Domino server. |
| 3 | Delete the following key files from the Domino\data directory, if they exist:<br><br>■ *.dsk ■ Log.nsf<br>■ Activity.nsf ■ Loga4.nsf<br>■ Admin4.nsf ■ Homepage.nsf<br>■ Bookmark.nsf ■ Mail*.box<br>■ Busytime.nsf ■ Mail\*.* (optional)<br>■ Catalog.nsf ■ Reports.nsf<br>■ Certlog.nsf ■ Schema.nsf<br>■ Certsrv.nsf ■ Statmail.nsf<br>■ Doladmin.nsf ■ Statrep.nsf<br>■ Dbdirman.nsf ■ Userlicenses.nsf<br>■ Events4.nsf ■ Webadmin.nsf |
| 4 | Delete the following files **only** if setting up a new Domino domain:<br><br>■ *.id ■ Names.nsf |

# Preparing to Reconfigure a Workstation

An administrator may break down a Notes Workstation when reallocating the machine to a different user.

## Breaking down a workstation

Follow these steps to break down a workstation in order to reconfigure it with a new name.

| Step | Action |
|------|--------|
| 1 | Shut down the client software on your workstation. This ensures that the files you are deleting are not open. |
| 2 | Edit the Notes.ini file located in the Notes program directory using any text editor so that it contains only the following lines:<br><br>`[Notes]`<br>`Directory=`*drive*`:\Notes\data`<br>`KitType=1 (for workstations)`<br>`InstallType=#`<br><br>where **drive** is the drive letter where the Notes client software is installed, and # is the InstallType currently listed in the Notes.ini file.<br>**Note:** KitType=1 indicates that this machine is a Notes workstation. |
| 3 | Delete the key files from the default Notes\data directory, as indicated below:<br>■ *.id<br>■ *.ndk<br>■ Bookmark.nsf<br>■ Busytime.nsf<br>■ Domadmin.nsf<br>■ Events4.nsf<br>■ Headline.nsf<br>■ Log.nsf<br>■ Mail.box<br>■ Names.nsf<br>■ Statrep.nsf<br>■ Userreg.nsf |

# Appendix D
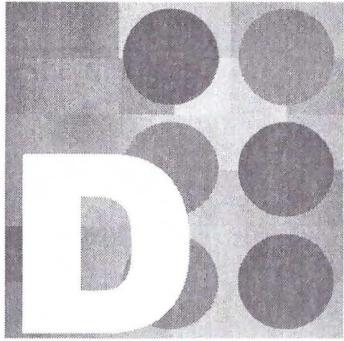
## Bibliography

# Bibliography

## References for further study

There are many references available for further information on Notes and Domino. The following items are some of the references for further study:

- IBM Redbook: A Roadmap for Deploying Domino in the Organization at: http://www.lotus.com/home.nsf/welcome/redbook
- Lotus Domino Administrator 6 Help:
  - The Glossary is available from the Contents view.
  - Create a full text index by selecting the Search view and searching for strings. To limit the number of documents returned by search, use wildcards and Boolean logic. For example, enter a search string such as **mail rules & journal\* & quarantine**.
- http://www.lotus.com/ldd
- http://www.lotus.com/ldd/notesua.nsf/find/inside-notes
- http://www.lotus.com/support
  Search for the following technote titles as well as other topics you need:
  - Troubleshooting Notes and Domino Server Performance
  - Troubleshooting Notes and Domino Server Crashes